



EBERLINE SERVICES

0061931

February 2, 2004

Mr. Steve Trent
Fluor Hanford Inc.
825 Jadwin Avenue
Richland, WA 99352

Reference: P.O. #630
Eberline Services R3-12-194-7677, SDG (H2479)

Dear Mr. Trent:

Enclosed is the data report for seven soil samples designated under SAF No. F03-025 received at Eberline Services on December 31, 2003. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

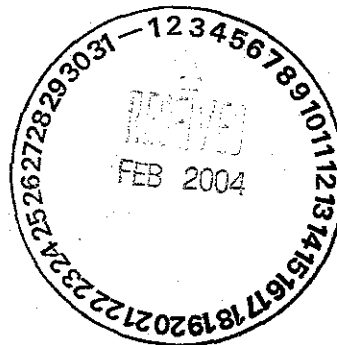
Melissa C. Mannion
Senior Program Manager

MCM/

Enclosure: Data Package

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1.0 GENERAL

Fluor Hanford Inc. (FH) Sample Delivery Group H2479 was composed of seven soil samples designated under SAF No. F03-025 with a Project Designation of: 200-LW-1/LW-2 Characterization – Soil.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist.

2.0 ANALYSIS NOTES

2.1 Tritium Analyses

The matrix spike recovery was 669%. The activity from sample B17RV3 (7,185 pCi/aliquot) swamped the spike activity (1,133 pCi/aliquot). No other problems were encountered during the course of the analyses.

2.2 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

2.3 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

2.4 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.4 Technetium-99 Analyses

Due to a failed LCS (353%) the samples were reanalyzed for Tc-99. The results from the reanalysis are reported herein. No problems were encountered during the course of the reanalyses.

2.5 Isotopic Thorium Analyses


No problems were encountered during the course of the analyses.

2.6 Gamma Spectroscopy Analyses

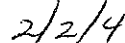
No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."



Melissa C. Mannion
Senior Program Manager



Date

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2479

SDG 7677
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H2479

S U M M A R Y D A T A S E C T I O N

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Melissa Mannion
Prepared by

Melissa Mannion
Reviewed by

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-TOC
Version 3.06
Report date 02/02/04

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2479

SDG 7677
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H2479

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

REPORT GUIDES

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SUMMARY DATA SECTION

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Form DVD-RG
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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2479

SDG 7677

Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford

Contract No. 630

Case no SDG H2479

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

REPORT GUIDES

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SUMMARY DATA SECTION

Page 2

Lab id EBRINE

Protocol Hanford

Version Ver 1.0

Form DVD-RG

Version 3.06

Report date 02/02/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2479

SDG 7677

Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client HanfordContract No. 630Case no SDG H2479

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R312194-01	B17RV3	216-B-58 #2 (35-37.5 FT)	SOLID		F03-025	F03-025-045	12/18/03 07:15
R312194-02	B17RX0	216-B-58 #2 (12.4-12 FT)	SOLID		F03-025	F03-025-010	12/17/03 09:00
R312194-03	B17RX4	216-B-58 #2 (17.5-20 FT)	SOLID		F03-025	F03-025-011	12/17/03 10:25
R312194-04	B17RY1	216-B-58 #2 (27.5-30 FT)	SOLID		F03-025	F03-025-014	12/17/03 14:00
R312194-05	B17RY8	216-B-58 #2 (22.5-25 FT)	SOLID		F03-025	F03-025-013	12/17/03 13:30
R312194-06	B17T00	216-B-58 #2 (52.5-55 FT)	SOLID		F03-025	F03-025-046	12/18/03 09:45
R312194-07	B17T03	216-B-58 #2 (97.5-100FT)	SOLID		F03-025	F03-025-047	12/22/03 10:05
R312194-08	Lab Control Sample		SOLID		F03-025		
R312194-09	Method Blank		SOLID		F03-025		
R312194-10	Duplicate (R312194-01)	216-B-58 #2 (35-37.5 FT)	SOLID		F03-025		12/18/03 07:15
R312194-12	Lab Control Sample		SOLID		F03-025		
R312194-13	Method Blank		SOLID		F03-025		
R312194-14	Duplicate (R312194-01)	216-B-58 #2 (35-37.5 FT)	SOLID		F03-025		12/18/03 07:15

LAB SUMMARY

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SUMMARY DATA SECTION

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Lab id EBRLNEProtocol HanfordVersion Ver 1.0Form DVD-LSVersion 3.06Report date 02/02/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2479

SDG 7677
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG H2479

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL SAMPLE ID	DEPARTMENT SAMPLE ID
7677	F03-025-010	B17RX0	SOLID	87.0	282.6 g		12/31/03 14	R312194-02	7677-002
	F03-025-011	B17RX4	SOLID	96.6	315.1 g		12/31/03 14	R312194-03	7677-003
	F03-025-013	B17RY8	SOLID	95.5	324.4 g		12/31/03 14	R312194-05	7677-005
	F03-025-014	B17RY1	SOLID	92.0	313.4 g		12/31/03 14	R312194-04	7677-004
	F03-025-045	B17RV3	SOLID	93.1	307.2 g		12/31/03 13	R312194-01	7677-001
	F03-025-046	B17T00	SOLID	95.3	335.7 g		12/31/03 13	R312194-06	7677-006
	F03-025-047	B17T03	SOLID	97.2	330.9 g		12/31/03 9	R312194-07	7677-007
		Method Blank	SOLID					R312194-09	7677-009
		Method Blank	SOLID					R312194-13	7677-013
		Lab Control Sample	SOLID					R312194-08	7677-008
		Lab Control Sample	SOLID					R312194-12	7677-012
		Duplicate (R312194-01)	SOLID	93.1	307.2 g		12/31/03 13	R312194-10	7677-010
		Duplicate (R312194-01)	SOLID	93.1	307.2 g		12/31/03 13	R312194-14	7677-014

QC SUMMARY

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2479

SDG 7677

Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford

Contract No. 630

Case no SDG H2479

TEST	MATRIX	METHOD	PREPARATION	ERROR	PLANCHETS ANALYZED				QUALI-		
			BATCH	2σ %	CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG
Alpha Spectroscopy											
TH	SOLID	Thorium, Isotopic in Soil	7084-024	5.0	7			1	1	1/1	
Beta Counting											
SR	SOLID	Total Strontium in Soil	7084-024	10.0	7			1	1	1/1	
TC	SOLID	Technetium 99 in Soil	7084-024	10.0	7			1	1	1/1	
Gamma Spectroscopy											
GAM	SOLID	Gamma Scan	7084-024	15.0	7			1	1	1/1	
Liquid Scintillation Counting											
C	SOLID	Carbon 14 in Soil	7084-024	10.0	7			1	1	1/1	
H	SOLID	Tritium in Soil	7084-024	10.0	7			1	1	1/1	
NI_L	SOLID	Nickel 63 in Soil	7084-024	10.0	7			1	1	1/1	

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.

Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

PREP BATCH SUMMARY

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SUMMARY DATA SECTION

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Lab id EBRLNE

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Version Ver 1.0

Form DVD-PBS

Version 3.06

Report date 02/02/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2479

SDG 7677
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG H2479

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	MATRIX SAF No	PLANCHET	TEST	SUF- FIX	ANALYZED	REVIEWED	BY	METHOD
R312194-01 12/18/03 12/31/03	B17RV3 216-B-58 #2 (35-37.5 FT) SOLID F03-025-045	F03-025	7677-001 7677-001 7677-001 7677-001 7677-001 7677-001 7677-001	C GAM H NI_L SR TC TH		01/12/04 01/16/04 01/18/04 01/18/04 01/15/04 02/02/04 01/16/04	01/22/04 01/22/04 01/22/04 01/22/04 01/22/04 02/02/04 01/22/04	MWT MWT MWT MWT MWT MWT MWT	Carbon 14 in Soil Gamma Scan Tritium in Soil Nickel 63 in Soil Total Strontium in Soil Technetium 99 in Soil Thorium, Isotopic in Soil
R312194-02 12/17/03 12/31/03	B17RX0 216-B-58 #2 (12.4-12 FT) SOLID F03-025-010	F03-025	7677-002 7677-002 7677-002 7677-002 7677-002 7677-002 7677-002	C GAM H NI_L SR TC TH		01/12/04 01/16/04 01/18/04 01/18/04 01/15/04 02/02/04 01/16/04	01/22/04 01/22/04 01/22/04 01/22/04 01/22/04 02/02/04 01/22/04	MWT MWT MWT MWT MWT MWT MWT	Carbon 14 in Soil Gamma Scan Tritium in Soil Nickel 63 in Soil Total Strontium in Soil Technetium 99 in Soil Thorium, Isotopic in Soil
R312194-03 12/17/03 12/31/03	B17RX4 216-B-58 #2 (17.5-20 FT) SOLID F03-025-011	F03-025	7677-003 7677-003 7677-003 7677-003 7677-003 7677-003 7677-003	C GAM H NI_L SR TC TH		01/12/04 01/16/04 01/18/04 01/18/04 01/15/04 01/31/04 01/16/04	01/22/04 01/22/04 01/22/04 01/22/04 01/22/04 02/02/04 01/22/04	MWT MWT MWT MWT MWT MWT MWT	Carbon 14 in Soil Gamma Scan Tritium in Soil Nickel 63 in Soil Total Strontium in Soil Technetium 99 in Soil Thorium, Isotopic in Soil
R312194-04 12/17/03 12/31/03	B17RY1 216-B-58 #2 (27.5-30 FT) SOLID F03-025-014	F03-025	7677-004 7677-004 7677-004 7677-004 7677-004 7677-004 7677-004	C GAM H NI_L SR TC TH		01/12/04 01/16/04 01/18/04 01/18/04 01/15/04 02/02/04 01/16/04	01/22/04 01/22/04 01/22/04 01/22/04 01/22/04 02/02/04 01/22/04	MWT MWT MWT MWT MWT MWT MWT	Carbon 14 in Soil Gamma Scan Tritium in Soil Nickel 63 in Soil Total Strontium in Soil Technetium 99 in Soil Thorium, Isotopic in Soil
R312194-05 12/17/03 12/31/03	B17RY8 216-B-58 #2 (22.5-25 FT) SOLID F03-025-013	F03-025	7677-005 7677-005 7677-005 7677-005 7677-005 7677-005 7677-005	C GAM H NI_L SR TC TH		01/12/04 01/16/04 01/18/04 01/18/04 01/15/04 01/31/04 01/16/04	01/22/04 01/22/04 01/22/04 01/22/04 01/22/04 02/02/04 01/22/04	MWT MWT MWT MWT MWT MWT MWT	Carbon 14 in Soil Gamma Scan Tritium in Soil Nickel 63 in Soil Total Strontium in Soil Technetium 99 in Soil Thorium, Isotopic in Soil

WORK SUMMARY

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Lab id EBRLE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 02/02/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2479

SDG 7677

Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford

Contract No. 630

Case no SDG H2479

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	MATRIX SAF No	PLANCHET	TEST	SUF- FIX	ANALYZED	REVIEWED	BY	METHOD
R312194-06 12/18/03 12/31/03	B17T00 216-B-58 #2 (52.5-55 FT) F03-025-046	SOLID F03-025	7677-006 7677-006 7677-006 7677-006 7677-006 7677-006	C GAM H NI_L SR TC		01/12/04 01/16/04 01/18/04 01/18/04 01/15/04 01/31/04	01/22/04 01/22/04 01/22/04 01/22/04 01/22/04 02/02/04	MWT MWT MWT MWT MWT MWT	Carbon 14 in Soil Gamma Scan Tritium in Soil Nickel 63 in Soil Total Strontium in Soil Technetium 99 in Soil
				TH	A1	01/16/04	01/22/04	MWT	Thorium, Isotopic in Soil
R312194-07 12/22/03 12/31/03	B17T03 216-B-58 #2 (97.5-100FT) F03-025-047	SOLID F03-025	7677-007 7677-007 7677-007 7677-007 7677-007 7677-007	C GAM H NI_L SR TC		01/12/04 01/16/04 01/18/04 01/18/04 01/15/04 02/02/04	01/22/04 01/22/04 01/22/04 01/22/04 01/22/04 02/02/04	MWT MWT MWT MWT MWT MWT	Carbon 14 in Soil Gamma Scan Tritium in Soil Nickel 63 in Soil Total Strontium in Soil Technetium 99 in Soil
				TH	A1	01/16/04	01/22/04	MWT	Thorium, Isotopic in Soil
R312194-08	Lab Control Sample	SOLID F03-025	7677-008 7677-008 7677-008 7677-008 7677-008 7677-008	C GAM H NI_L SR TH		01/12/04 01/17/04 01/18/04 01/18/04 01/15/04 01/16/04	01/22/04 01/22/04 01/22/04 01/22/04 01/22/04 01/22/04	MWT MWT MWT MWT MWT MWT	Carbon 14 in Soil Gamma Scan Tritium in Soil Nickel 63 in Soil Total Strontium in Soil Thorium, Isotopic in Soil
R312194-09	Method Blank	SOLID F03-025	7677-009 7677-009 7677-009 7677-009 7677-009 7677-009	C GAM H NI_L SR TH		01/12/04 01/17/04 01/18/04 01/18/04 01/15/04 01/16/04	01/22/04 01/22/04 01/22/04 01/22/04 01/22/04 01/22/04	MWT MWT MWT MWT MWT MWT	Carbon 14 in Soil Gamma Scan Tritium in Soil Nickel 63 in Soil Total Strontium in Soil Thorium, Isotopic in Soil
R312194-10 12/18/03 12/31/03	Duplicate (R312194-01) 216-B-58 #2 (35-37.5 FT) F03-025	SOLID	7677-010 7677-010 7677-010 7677-010 7677-010 7677-010	C GAM H NI_L SR TH		01/12/04 01/17/04 01/19/04 01/19/04 01/15/04 01/16/04	01/22/04 01/22/04 01/22/04 01/22/04 01/22/04 01/22/04	MWT MWT MWT MWT MWT MWT	Carbon 14 in Soil Gamma Scan Tritium in Soil Nickel 63 in Soil Total Strontium in Soil Thorium, Isotopic in Soil

WORK SUMMARY

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Lab id EBRLINE

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Version Ver 1.0

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Report date 02/02/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2479

SDG 7677

Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford

Contract No. 630

Case no SDG H2479

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	MATRIX SAF No	PLANCHET	TEST	SUF- FIX	ANALYZED	REVIEWED	BY	METHOD
R312194-12	Lab Control Sample	SOLID F03-025	7677-012	TC		01/30/04	02/02/04	MWT	Technetium 99 in Soil
R312194-13	Method Blank	SOLID F03-025	7677-013	TC		01/31/04	02/02/04	MWT	Technetium 99 in Soil
R312194-14	Duplicate (R312194-01) 12/18/03 216-B-58 #2 (35-37.5 FT) SOLID 12/31/03	SOLID F03-025	7677-014	TC		02/02/04	02/02/04	MWT	Technetium 99 in Soil

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
C	F03-025	Carbon 14 in Soil	C14_COX_LSC	7			1	1	1		10
GAM	F03-025	Gamma Scan	GAMMA_GS	7			1	1	1		10
H	F03-025	Tritium in Soil	906.0_H3_LSC	7			1	1	1		10
Ni_L	F03-025	Nickel 63 in Soil	NI63_LSC	7			1	1	1		10
SR	F03-025	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	7			1	1	1		10
TC	F03-025	Technetium 99 in Soil	TC99_TR_SEP_LSC	7			1	1	1		10
TH	F03-025	Thorium, Isotopic in Soil	THISO_IE_PLATE_AEA	7			1	1	1		10
TOTALS				49			7	7	7		70

WORK SUMMARY

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2479

7677-009

Method Blank

METHOD BLANK

SDG <u>7677</u>	Client/Case no <u>Hanford</u>	SDG <u>H2479</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R312194-09</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7677-009</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>F03-025</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	0.077	0.19	0.31	400	U	H
Carbon 14	14762-75-5	1.33	1.9	3.1	50	U	C
Nickel 63	13981-37-8	-0.416	1.3	2.1	30	U	NI_L
Total Strontium	SR-RAD	-0.010	0.15	0.20	1.0	U	SR
Thorium 228	14274-82-9	0.082	0.083	0.31		U	TH
Thorium 230	14269-63-7	-0.165	0.084	0.31	1.0	U	TH
Thorium 232	TH-232	-0.041	0.082	0.31	1.0	U	TH
Potassium 40	13966-00-2	U		0.49		U	GAM
Cobalt 60	10198-40-0	U		0.048	0.050	U	GAM
Cesium 137	10045-97-3	U		0.048	0.10	U	GAM
Radium 226	13982-63-3	U		0.082	0.10	U	GAM
Radium 228	15262-20-1	U		0.19	0.20	U	GAM
Europium 152	14683-23-9	U		0.10	0.10	U	GAM
Europium 154	15585-10-1	U		0.14	0.10	U	GAM
Europium 155	14391-16-3	U		0.073	0.10	U	GAM
Thorium 228	14274-82-9	U		0.054		U	GAM
Thorium 232	TH-232	U		0.19		U	GAM
Uranium 235	15117-96-1	U		0.12		U	GAM
Uranium 238	U-238	U		5.4		U	GAM
Americium 241	14596-10-2	U		0.096		U	GAM

200-LW-1/LW-2 Characterization-Soil

QC-BLANK #46518

METHOD BLANKS

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
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Report date <u>02/02/04</u>

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2479

7677-013

Method Blank

METHOD BLANK

SDG <u>7677</u>	Client/Case no <u>Hanford</u>	SDG <u>H2479</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R312194-13</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7677-013</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>F03-025</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Technetium 99	14133-76-7	-0.130	0.14	0.55	15	U	TC

200-LW-1/LW-2 Characterization-Soil

QC-BLANK #46627

METHOD BLANKS

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2479

7677-008

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7677</u> Contact <u>Melissa C. Mannion</u>	Client/Case no <u>Hanford</u> SDG <u>H2479</u> Contract No. <u>630</u>
Lab sample id <u>R312194-08</u> Dept sample id <u>7677-008</u>	Client sample id <u>Lab Control Sample</u> Material/Matrix <u>SOLID</u> SAF No <u>F03-025</u>

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	12.5	0.45	0.32	400		H	12.8	0.51	98	83-117	80-120
Carbon 14	1910	19	4.5	50		C	2130	85	90	85-115	80-120
Nickel 63	295	5.1	2.3	30		NI_L	272	11	108	82-118	80-120
Total Strontium	12.0	0.45	0.23	1.0		SR	11.4	0.46	105	82-118	80-120
Thorium 230	41.0	4.5	0.33	1.0		TH	46.4	1.9	88	83-117	80-120
Cobalt 60	5.11	0.31	<u>0.14</u>	0.050		GAM	5.35	0.21	96	76-124	80-120
Cesium 137	4.99	0.26	<u>0.19</u>	0.10		GAM	4.79	0.19	104	74-126	80-120

200-LW-1/LW-2 Characterization-Soil

QC-LCS #46517

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2479

7677-012

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7677</u>	Client/Case no <u>Hanford</u>	SDG <u>H2479</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R312194-12</u>	Client sample id <u>Lab Control Sample</u>	
Dept sample id <u>7677-012</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>F03-025</u>	

ANALYTE	RESULT pCi/g	2 σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ADDED pCi/g	2 σ ERR pCi/g	REC %	3 σ LMTS (TOTAL)	PROTOCOL LIMITS
Technetium 99	110	2.9	0.54	15		TC	109	4.4	101	83-117	80-120

200-LW-1/LW-2 Characterization-Soil

QC-LCS #46626

LAB CONTROL SAMPLES

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2479

7677-010

B17RV3

DUPLICATE

SDG <u>7677</u>		Client/Case no <u>Hanford</u>		SDG <u>H2479</u>
Contact <u>Melissa C. Mannion</u>		Contract No. <u>630</u>		
DUPLICATE		ORIGINAL		
Lab sample id <u>R312194-10</u>	Lab sample id <u>R312194-01</u>	Client sample id <u>B17RV3</u>		
Dept sample id <u>7677-010</u>	Dept sample id <u>7677-001</u>	Location/Matrix <u>216-B-58 #2 (35-37.5 FT) SOLID</u>		
	Received <u>12/31/03</u>	Collected/Weight <u>12/18/03 07:15 307.2 g</u>		
% solids <u>93.1</u>	% solids <u>93.1</u>	Custody/SAF No <u>F03-025-045 F03-025</u>		

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI- FIERS	RPD %	3σ TOT	PROT LIMIT
Tritium	322	3.2	0.49	400		H	350	3.5	0.53		8	21	
Carbon 14	0.468	1.3	2.2	50	U	C	-0.020	1.6	2.7	U	-		
Nickel 63	-0.233	1.4	2.4	30	U	NI_L	-0.724	1.4	2.3	U	-		
Total Strontium	-0.097	0.13	0.19	1.0	U	SR	-0.022	0.12	0.16	U	-		
Thorium 228	0.602	0.37	0.35			TH	0.466	0.29	0.27		25	132	
Thorium 230	0.416	0.37	0.35	1.0		TH	0.143	0.22	0.27	U	98	231	
Thorium 232	0.878	0.38	0.35	1.0		TH	0.429	0.29	0.27		69	110	
Potassium 40	7.49	6.3	1.2			GAM	12.5	2.1	1.6		50	105	
Cobalt 60	U		0.21	0.050	U	GAM	U		0.17	U	-		
Cesium 137	U		0.15	0.10	U	GAM	U		0.13	U	-		
Radium 226	U		0.62	0.10	U	GAM	0.570	0.26	0.29		8	172	
Radium 228	U		1.1	0.20	U	GAM	0.532	0.47	0.58	U	-		
Europium 152	U		0.27	0.10	U	GAM	U		0.26	U	-		
Europium 154	U		0.37	0.10	U	GAM	U		0.42	U	-		
Europium 155	U		0.21	0.10	U	GAM	U		0.27	U	-		
Thorium 228	0.867	0.27	0.19			GAM	0.688	0.12	0.13		23	65	
Thorium 232	U		1.1		U	GAM	0.532	0.47	0.58	U	-		
Uranium 235	U		0.34		U	GAM	U		0.40	U	-		
Uranium 238	U		14		U	GAM	U		16	U	-		
Americium 241	U		0.097		U	GAM	U		0.30	U	-		

200-LW-1/LW-2 Characterization-Soil

QC-DUP#1 46519

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2479

7677-014

B17RV3

DUPLICATE

SDG <u>7677</u>	Client/Case no <u>Hanford</u>	SDG <u>H2479</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>R312194-14</u>	Lab sample id <u>R312194-01</u>	Client sample id <u>B17RV3</u>
Dept sample id <u>7677-014</u>	Dept sample id <u>7677-001</u>	Location/Matrix <u>216-B-58 #2 (35-37.5 FT) SOLID</u>
	Received <u>12/31/03</u>	Collected/Weight <u>12/18/03 07:15 307.2 g</u>
% solids <u>93.1</u>	% solids <u>93.1</u>	Custody/SAF No <u>F03-025-045</u> <u>F03-025</u>

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI- FIERS	RPD %	3σ PROT TOT LIMIT
Technetium 99	-0.074	0.14	0.52	15	U	TC	0.036	0.18	0.57	U	-	

200-LW-1/LW-2 Characterization-Soil

QC-DUP#1A1 46628

DUPLICATES

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2479

7677-001

B17RV3

DATA SHEET

SDG <u>7677</u>	Client/Case no <u>Hanford</u>	SDG <u>H2479</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R312194-01</u>	Client sample id <u>B17RV3</u>	
Dept sample id <u>7677-001</u>	Location/Matrix <u>216-B-58 #2 (35-37.5 FT) SOLID</u>	
Received <u>12/31/03</u>	Collected/Weight <u>12/18/03 07:15 307.2 g</u>	
% solids <u>93.1</u>	Custody/SAF No <u>F03-025-045</u>	<u>F03-025</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	350	3.5	0.53	400		H
Carbon 14	14762-75-5	-0.020	1.6	2.7	50	U	C
Nickel 63	13981-37-8	-0.724	1.4	2.3	30	U	NI_L
Total Strontium	SR-RAD	-0.022	0.12	0.16	1.0	U	SR
Technetium 99	14133-76-7	0.036	0.18	0.57	15	U	TC
Thorium 228	14274-82-9	0.466	0.29	0.27			TH
Thorium 230	14269-63-7	0.143	0.22	0.27	1.0	U	TH
Thorium 232	TH-232	0.429	0.29	0.27	1.0		TH
Potassium 40	13966-00-2	12.5	2.1	1.6			GAM
Cobalt 60	10198-40-0	U		0.17	0.050	U	GAM
Cesium 137	10045-97-3	U		0.13	0.10	U	GAM
Radium 226	13982-63-3	0.570	0.26	0.29	0.10		GAM
Radium 228	15262-20-1	0.532	0.47	0.58	0.20	U	GAM
Europium 152	14683-23-9	U		0.26	0.10	U	GAM
Europium 154	15585-10-1	U		0.42	0.10	U	GAM
Europium 155	14391-16-3	U		0.27	0.10	U	GAM
Thorium 228	14274-82-9	0.688	0.12	0.13			GAM
Thorium 232	TH-232	0.532	0.47	0.58		U	GAM
Uranium 235	15117-96-1	U		0.40		U	GAM
Uranium 238	U-238	U		16		U	GAM
Americium 241	14596-10-2	U		0.30		U	GAM

200-LW-1/LW-2 Characterization-Soil

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2479

7677-002

B17RX0

DATA SHEET

SDG <u>7677</u>	Client/Case no <u>Hanford</u>	SDG <u>H2479</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R312194-02</u>	Client sample id <u>B17RX0</u>	
Dept sample id <u>7677-002</u>	Location/Matrix <u>216-B-58 #2 (12.4-12 FT) SOLID</u>	
Received <u>12/31/03</u>	Collected/Weight <u>12/17/03 09:00 282.6 g</u>	
% solids <u>87.0</u>	Custody/SAF No <u>F03-025-010 F03-025</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	10.2	0.40	0.31	400		H
Carbon 14	14762-75-5	1.12	1.6	2.7	50	U	C
Nickel 63	13981-37-8	165	3.8	2.2	30		NI_L
Total Strontium	SR-RAD	0.412	0.14	0.17	1.0		SR
Technetium 99	14133-76-7	0.104	0.24	0.53	15	U	TC
Thorium 228	14274-82-9	0.559	0.30	0.29			TH
Thorium 230	14269-63-7	0.372	0.30	0.28	1.0		TH
Thorium 232	TH-232	0.894	0.38	0.28	1.0		TH
Potassium 40	13966-00-2	15.6	6.7	8.2			GAM
Cobalt 60	10198-40-0	1700	5.0	1.6	0.050		GAM
Cesium 137	10045-97-3	14.2	1.3	1.7	0.10		GAM
Radium 226	13982-63-3	U		2.4	0.10	U	GAM
Radium 228	15262-20-1	U		9.0	0.20	U	GAM
Europium 152	14683-23-9	U		2.7	0.10	U	GAM
Europium 154	15585-10-1	U		3.5	0.10	U	GAM
Europium 155	14391-16-3	U		1.6	0.10	U	GAM
Thorium 228	14274-82-9	1.51	0.90	1.3			GAM
Thorium 232	TH-232	U		9.0		U	GAM
Uranium 235	15117-96-1	U		2.5		U	GAM
Uranium 238	U-238	U		270		U	GAM
Americium 241	14596-10-2	297	2.9	3.1			GAM

200-LW-1/LW-2 Characterization-Soil

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2479

7677-003

B17RX4

DATA SHEET

SDG <u>7677</u>	Client/Case no <u>Hanford</u>	SDG <u>H2479</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R312194-03</u>	Client sample id <u>B17RX4</u>	
Dept sample id <u>7677-003</u>	Location/Matrix <u>216-B-58 #2 (17.5-20 FT) SOLID</u>	
Received <u>12/31/03</u>	Collected/Weight <u>12/17/03 10:25 315.1 g</u>	
% solids <u>96.6</u>	Custody/SAF No <u>F03-025-011 F03-025</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	40.8	0.75	0.32	400		H
Carbon 14	14762-75-5	0.424	1.3	2.2	50	U	C
Nickel 63	13981-37-8	1.32	1.4	2.3	30	U	NI_L
Total Strontium	SR-RAD	-0.080	0.11	0.16	1.0	U	SR
Technetium 99	14133-76-7	-0.022	0.17	0.52	15	U	TC
Thorium 228	14274-82-9	0.379	0.26	0.32			TH
Thorium 230	14269-63-7	0.421	0.34	0.32	1.0		TH
Thorium 232	TH-232	0.253	0.17	0.32	1.0	U	TH
Potassium 40	13966-00-2	U		2.9		U	GAM
Cobalt 60	10198-40-0	0.794	0.13	0.11	0.050		GAM
Cesium 137	10045-97-3	U		0.092	0.10	U	GAM
Radium 226	13982-63-3	U		0.21	0.10	U	GAM
Radium 228	15262-20-1	U		0.47	0.20	U	GAM
Europium 152	14683-23-9	U		0.21	0.10	U	GAM
Europium 154	15585-10-1	U		0.25	0.10	U	GAM
Europium 155	14391-16-3	U		0.16	0.10	U	GAM
Thorium 228	14274-82-9	0.368	0.20	0.091			GAM
Thorium 232	TH-232	U		0.47		U	GAM
Uranium 235	15117-96-1	U		0.26		U	GAM
Uranium 238	U-238	U		12		U	GAM
Americium 241	14596-10-2	U		0.074		U	GAM

200-LW-1/LW-2 Characterization-Soil

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2479

7677-004

B17RY1

DATA SHEET

SDG <u>7677</u>	Client/Case no <u>Hanford</u>	SDG <u>H2479</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
Lab sample id <u>R312194-04</u>	Client sample id <u>B17RY1</u>	
Dept sample id <u>7677-004</u>	Location/Matrix <u>216-B-58 #2 (27.5-30 FT) SOLID</u>	
Received <u>12/31/03</u>	Collected/Weight <u>12/17/03 14:00 313.4 g</u>	
% solids <u>92.0</u>	Custody/SAF No <u>F03-025-014</u>	<u>F03-025</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	798	8.0	0.83	400		H
Carbon 14	14762-75-5	0.136	1.4	2.3	50	U	C
Nickel 63	13981-37-8	0.400	1.4	2.4	30	U	NI_L
Total Strontium	SR-RAD	-0.026	0.11	0.16	1.0	U	SR
Technetium 99	14133-76-7	-0.058	0.16	0.55	15	U	TC
Thorium 228	14274-82-9	0.520	0.32	0.31			TH
Thorium 230	14269-63-7	0.520	0.32	0.38	1.0		TH
Thorium 232	TH-232	0.560	0.32	0.31	1.0		TH
Potassium 40	13966-00-2	15.0	1.2	0.84			GAM
Cobalt 60	10198-40-0	10.4	0.28	0.12	0.050		GAM
Cesium 137	10045-97-3	U		0.11	0.10	U	GAM
Radium 226	13982-63-3	0.892	0.22	0.22	0.10		GAM
Radium 228	15262-20-1	1.36	0.55	0.63	0.20		GAM
Europium 152	14683-23-9	U		0.21	0.10	U	GAM
Europium 154	15585-10-1	U		0.31	0.10	U	GAM
Europium 155	14391-16-3	U		0.15	0.10	U	GAM
Thorium 228	14274-82-9	0.896	0.082	0.092			GAM
Thorium 232	TH-232	1.36	0.55	0.63			GAM
Uranium 235	15117-96-1	U		0.23		U	GAM
Uranium 238	U-238	U		17		U	GAM
Americium 241	14596-10-2	U		0.18		U	GAM

200-LW-1/LW-2 Characterization-Soil

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2479

7677-005

B17RY8

DATA SHEET

SDG <u>7677</u>	Client/Case no <u>Hanford</u>	SDG <u>H2479</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
Lab sample id <u>R312194-05</u>	Client sample id <u>B17RY8</u>	
Dept sample id <u>7677-005</u>	Location/Matrix <u>216-B-58 #2 (22.5-25 FT) SOLID</u>	
Received <u>12/31/03</u>	Collected/Weight <u>12/17/03 13:30 324.4 g</u>	
% solids <u>95.5</u>	Custody/SAF No <u>F03-025-013</u>	<u>F03-025</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	247	2.5	0.43	400		H
Carbon 14	14762-75-5	1.48	1.5	2.5	50	U	C
Nickel 63	13981-37-8	-0.195	1.4	2.4	30	U	NI_L
Total Strontium	SR-RAD	1.01	0.16	0.17	1.0		SR
Technetium 99	14133-76-7	0.081	0.18	0.56	15	U	TC
Thorium 228	14274-82-9	0.377	0.23	0.29			TH
Thorium 230	14269-63-7	0.339	0.30	0.29	1.0		TH
Thorium 232	TH-232	0.489	0.30	0.29	1.0		TH
Potassium 40	13966-00-2	12.0	1.1	0.74			GAM
Cobalt 60	10198-40-0	3.50	0.15	0.083	0.050		GAM
Cesium 137	10045-97-3	U		0.077	0.10	U	GAM
Radium 226	13982-63-3	0.450	0.091	0.12	0.10		GAM
Radium 228	15262-20-1	0.518	0.34	0.41	0.20		GAM
Europium 152	14683-23-9	U		0.15	0.10	U	GAM
Europium 154	15585-10-1	U		0.22	0.10	U	GAM
Europium 155	14391-16-3	U		0.12	0.10	U	GAM
Thorium 228	14274-82-9	0.560	0.067	0.072			GAM
Thorium 232	TH-232	0.518	0.34	0.41			GAM
Uranium 235	15117-96-1	U		0.20		U	GAM
Uranium 238	U-238	U		11		U	GAM
Americium 241	14596-10-2	U		0.14		U	GAM

200-LW-1/LW-2 Characterization-Soil

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2479

7677-006

B17T00

DATA SHEET

SDG <u>7677</u>	Client/Case no <u>Hanford</u>	SDG <u>H2479</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R312194-06</u>	Client sample id <u>B17T00</u>	
Dept sample id <u>7677-006</u>	Location/Matrix <u>216-B-58 #2 (52.5-55 FT) SOLID</u>	
Received <u>12/31/03</u>	Collected/Weight <u>12/18/03 09:45 335.7 g</u>	
% solids <u>95.3</u>	Custody/SAF No <u>F03-025-046</u>	<u>F03-025</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	240	2.4	0.43	400		H
Carbon 14	14762-75-5	0.228	1.7	2.8	50	U	C
Nickel 63	13981-37-8	-0.734	1.4	2.4	30	U	NI_L
Total Strontium	SR-RAD	-0.020	0.11	0.16	1.0	U	SR
Technetium 99	14133-76-7	0.012	0.26	0.55	15	U	TC
Thorium 228	14274-82-9	0.472	0.32	0.30			TH
Thorium 230	14269-63-7	0.314	0.32	0.30	1.0		TH
Thorium 232	TH-232	0.432	0.24	0.30	1.0		TH
Potassium 40	13966-00-2	16.7	0.73	0.37			GAM
Cobalt 60	10198-40-0	U		0.039	0.050	U	GAM
Cesium 137	10045-97-3	U		0.036	0.10	U	GAM
Radium 226	13982-63-3	0.570	0.071	0.069	0.10		GAM
Radium 228	15262-20-1	0.924	0.16	0.14	0.20		GAM
Europium 152	14683-23-9	U		0.077	0.10	U	GAM
Europium 154	15585-10-1	U		0.12	0.10	U	GAM
Europium 155	14391-16-3	0.077	0.054	0.078	0.10	U	GAM
Thorium 228	14274-82-9	0.765	0.042	0.035			GAM
Thorium 232	TH-232	0.924	0.16	0.14			GAM
Uranium 235	15117-96-1	U		0.099		U	GAM
Uranium 238	U-238	U		4.4		U	GAM
Americium 241	14596-10-2	U		0.082		U	GAM

200-LW-1/LW-2 Characterization-Soil

DATA SHEETS

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/02/04</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2479

7677-007

B17T03

DATA SHEET

SDG <u>7677</u>	Client/Case no <u>Hanford</u>	SDG <u>H2479</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R312194-07</u>	Client sample id <u>B17T03</u>	
Dept sample id <u>7677-007</u>	Location/Matrix <u>216-B-58 #2 (97.5-100FT) SOLID</u>	
Received <u>12/31/03</u>	Collected/Weight <u>12/22/03 10:05 330.9 g</u>	
% solids <u>97.2</u>	Custody/SAF No <u>F03-025-047</u>	<u>F03-025</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	-0.106	0.17	0.30	400	U	H
Carbon 14	14762-75-5	0.319	1.6	2.7	50	U	C
Nickel 63	13981-37-8	0.554	1.4	2.4	30	U	NI_L
Total Strontium	SR-RAD	-0.051	0.11	0.16	1.0	U	SR
Technetium 99	14133-76-7	-0.086	0.16	0.56	15	U	TC
Thorium 228	14274-82-9	0.707	0.36	0.27			TH
Thorium 230	14269-63-7	0.176	0.28	0.34	1.0	U	TH
Thorium 232	TH-232	0.671	0.29	0.27	1.0		TH
Potassium 40	13966-00-2	16.0	4.7	0.60			GAM
Cobalt 60	10198-40-0	U		0.097	0.050	U	GAM
Cesium 137	10045-97-3	U		0.055	0.10	U	GAM
Radium 226	13982-63-3	0.501	0.25	0.10	0.10		GAM
Radium 228	15262-20-1	0.961	0.34	0.24	0.20		GAM
Europium 152	14683-23-9	U		0.14	0.10	U	GAM
Europium 154	15585-10-1	U		0.18	0.10	U	GAM
Europium 155	14391-16-3	U		0.11	0.10	U	GAM
Thorium 228	14274-82-9	1.00	0.17	0.062			GAM
Thorium 232	TH-232	0.961	0.34	0.24			GAM
Uranium 235	15117-96-1	U		0.18		U	GAM
Uranium 238	U-238	U		7.2		U	GAM
Americium 241	14596-10-2	U		0.051		U	GAM

200-LW-1/LW-2 Characterization-Soil

DATA SHEETS

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SUMMARY DATA SECTION

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Lab id <u>EBERLINE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/02/04</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2479

LAB METHOD SUMMARY

THORIUM, ISOTOPIC IN SOIL

ALPHA SPECTROSCOPY

Test TH Matrix SOLIDSDG 7677Contact Melissa C. MannionClient HanfordContract No. 630Contract SDG H2479

RESULTS

LAB RAW SUF-
 SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Thorium 230

Preparation batch 7084-024

R312194-01	7677-001	B17RV3	U
R312194-02	7677-002	B17RX0	0.372
R312194-03	7677-003	B17RX4	0.421
R312194-04	7677-004	B17RY1	0.520
R312194-05	7677-005	B17RY8	0.339
R312194-06	7677-006	B17T00	0.314
R312194-07	7677-007	B17T03	U
R312194-08	7677-008	LCS (QC ID=46517)	ok
R312194-09	7677-009	BLK (QC ID=46518)	U
R312194-10	7677-010	Duplicate (R312194-01)	ok

Nominal values and limits from method RDLs (pCi/g) 1.0
 200-LW-1/LW-2 Characterization-Soil

METHOD PERFORMANCE

LAB	RAW	SUF-	MAX MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD PREPARED	YZED DETECTOR
Preparation batch 7084-024			2σ prep error 5.0 %			Reference Lab Notebook 7084 pg. 024							
R312194-01		B17RV3	0.27	0.250			96	152				29 01/16/04 01/16	SS-056
R312194-02		B17RX0	0.28	0.250			96	152				30 01/16/04 01/16	SS-057
R312194-03		B17RX4	0.32	0.250			84	152				30 01/16/04 01/16	SS-058
R312194-04		B17RY1	0.38	0.250			88	155				30 01/16/04 01/16	SS-059
R312194-05		B17RY8	0.29	0.250			88	155				30 01/16/04 01/16	SS-060
R312194-06		B17T00	0.30	0.250			87	155				29 01/16/04 01/16	SS-061
R312194-07		B17T03	0.34	0.250			96	155				25 01/16/04 01/16	SS-062
R312194-08		LCS (QC ID=46517)	0.33	0.250			91	156				01/16/04 01/16	SS-063
R312194-09		BLK (QC ID=46518)	0.31	0.250			83	156				01/16/04 01/16	SS-065
R312194-10		Duplicate (R312194-01) (QC ID=46519)	0.35	0.250			75	156				29 01/16/04 01/16	SS-066

Nominal values and limits from method 1.0 0.250 20-105 150 180

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNEProtocol HanfordVersion Ver 1.0Form DVD-LMSVersion 3.06Report date 02/02/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2479

Test IH Matrix SOLID

SDG 7677

Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.

THORIUM, ISOTOPIC IN SOIL

ALPHA SPECTROSCOPY

Client Hanford

Contract No. 630

Contract SDG H2479

PROCEDURES	REFERENCE	THISO_IE_PLATE_AEA
CP-061	Determination of Moisture Content in Solid Samples rev 1	
CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2	
CP-900	Thorium in Water and Dissolved Solid Samples by Extraction Chromatography, rev 1	
CP-008	Heavy Element Electroplating, rev 7	

AVERAGES \pm 2 SD
FOR 10 SAMPLES

MDA 0.32 \pm 0.068
YIELD 88 \pm 14

METHOD SUMMARIES

Page 2

SUMMARY DATA SECTION

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Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-LMS

Version 3.06

Report date 02/02/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2479

Test SR Matrix SOLID
SDG 7677
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOIL

BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H2479

RESULTS

LAB	RAW	SUF-		Total
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Strontium

Preparation batch 7084-024

R312194-01		7677-001	B17RV3	U
R312194-02		7677-002	B17RX0	0.412
R312194-03		7677-003	B17RX4	U
R312194-04		7677-004	B17RY1	U
R312194-05		7677-005	B17RY8	1.01
R312194-06		7677-006	B17T00	U
R312194-07		7677-007	B17T03	U
R312194-08		7677-008	LCS (QC ID=46517)	ok
R312194-09		7677-009	BLK (QC ID=46518)	U
R312194-10		7677-010	Duplicate (R312194-01)	- U

Nominal values and limits from method RDLs (pCi/g) 1.0
200-LW-1/LW-2 Characterization-Soil

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED

Preparation batch 7084-024 2σ prep error 10.0 % Reference Lab Notebook 7084 pg. 024

R312194-01		B17RV3	0.16	1.00			100		400			28	01/15/04
R312194-02		B17RX0	0.17	1.00			100		400			29	01/15/04
R312194-03		B17RX4	0.16	1.00			100		400			29	01/15/04
R312194-04		B17RY1	0.16	1.00			100		400			29	01/15/04
R312194-05		B17RY8	0.17	1.00			100		400			29	01/15/04
R312194-06		B17T00	0.16	1.00			100		400			28	01/15/04
R312194-07		B17T03	0.16	1.00			100		400			24	01/15/04
R312194-08		LCS (QC ID=46517)	0.23	1.00			78		400			01/15/04	01/15
R312194-09		BLK (QC ID=46518)	0.20	1.00			81		400			01/15/04	01/15
R312194-10		Duplicate (R312194-01)	0.19	1.00			86		400			28	01/15/04
		(QC ID=46519)											

Nominal values and limits from method 1.0 1.00 30-105 100 180

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 02/02/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2479

Test SR Matrix SOLID

SDG 7677

Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.

TOTAL STRONTIUM IN SOIL

BETA COUNTING

Client Hanford

Contract No. 630

Contract SDG H2479

PROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	CP-061	Determination of Moisture Content in Solid Samples rev 1
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-381	Strontium in Solids, rev 1

AVERAGES \pm 2 SD
FOR 10 SAMPLES

MDA 0.18 \pm 0.047
YIELD 94 \pm 18

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-LMS

Version 3.06

Report date 02/02/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2479

Test IC Matrix SOLID
SDG 7677
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TECHNETIUM 99 IN SOIL

BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H2479

RESULTS

LAB	RAW	SUF-		Technetium
SAMPLE ID	TEST	FIX	PLANCHET	CLIENT SAMPLE ID
				99
Preparation batch 7084-024				
R312194-01	A1		7677-001	B17RV3 U
R312194-02	A1		7677-002	B17RX0 U
R312194-03	A1		7677-003	B17RX4 U
R312194-04	A1		7677-004	B17RY1 U
R312194-05	A1		7677-005	B17RY8 U
R312194-06	A1		7677-006	B17T00 U
R312194-07	A1		7677-007	B17T03 U
R312194-12			7677-012	LCS (QC ID=46626) ok
R312194-13			7677-013	BLK (QC ID=46627) U
R312194-14			7677-014	Duplicate (R312194-01) - U

Nominal values and limits from method RDLs (pCi/g) 15
200-LW-1/LW-2 Characterization-Soil

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-
SAMPLE ID	TEST	FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD PREPARED YZED DETECTOR
Preparation batch 7084-024 2σ prep error 10.0 % Reference Lab Notebook 7084 pg. 024													
R312194-01	A1		B17RV3	0.57	1.01			91		50		46	01/27/04 02/02 GRB-221
R312194-02	A1		B17RX0	0.53	1.02			90		50		47	01/27/04 02/02 GRB-222
R312194-03	A1		B17RX4	0.52	1.03			93		50		45	01/27/04 01/31 GRB-203
R312194-04	A1		B17RY1	0.55	1.01			91		50		47	01/27/04 02/02 GRB-224
R312194-05	A1		B17RY8	0.56	1.01			92		50		45	01/27/04 01/31 GRB-202
R312194-06	A1		B17T00	0.55	1.00			92		50		44	01/27/04 01/31 GRB-203
R312194-07	A1		B17T03	0.56	1.04			90		50		42	01/27/04 02/02 GRB-221
R312194-12			LCS (QC ID=46626)	0.54	1.00			94		50			01/27/04 01/30 GRB-217
R312194-13			BLK (QC ID=46627)	0.55	1.00			94		50			01/27/04 01/31 GRB-202
R312194-14			Duplicate (R312194-01) (QC ID=46628)	0.52	1.01			93		50		46	01/27/04 02/02 GRB-222

Nominal values and limits from method 15 1.00 20-105 50 180

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2479

LAB METHOD SUMMARY, cont.

TECHNETIUM 99 IN SOIL
BETA COUNTING

Test TC Matrix SOLID
SDG 7677
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H2479

PROCEDURES	REFERENCE	TC99_TR_SEP_LSC
	CP-021	Preparation of Tc-99m Tracer, rev 2
	CP-002	Q.C. Preparation, rev 4
	CP-003	Addition of Carriers and Tracers, rev 5
	CP-431	Technetium-99 Purification of Soil or Resin by Extraction Chromatography, rev 0
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES \pm 2 SD	MDA	<u>0.54</u>	\pm	<u>0.034</u>
FOR 10 SAMPLES	YIELD	<u>92</u>	\pm	<u>3</u>

METHOD SUMMARIES

Page 6

SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 02/02/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2479

Test GAM Matrix SOLID
SDG 7677
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA SCAN
GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2479

RESULTS

LAB RAW SUF-
SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Cobalt 60 Cesium 137

Preparation batch 7084-024

R312194-01	7677-001	B17RV3	U	U
R312194-02	7677-002	B17RX0	1700	14.2
R312194-03	7677-003	B17RX4	0.794	U
R312194-04	7677-004	B17RY1	10.4	U
R312194-05	7677-005	B17RY8	3.50	U
R312194-06	7677-006	B17T00	U	U
R312194-07	7677-007	B17T03	U	U
R312194-08	7677-008	LCS (QC ID=46517)	ok	ok
R312194-09	7677-009	BLK (QC ID=46518)	U	U
R312194-10	7677-010	Duplicate (R312194-01)	- U	- U

Nominal values and limits from method RDLs (pCi/g) 0.050 0.10
200-LW-1/LW-2 Characterization-Soil

METHOD PERFORMANCE

LAB RAW SUF- MDA ALIQ PREP DILU- YIELD EFF COUNT FWHM DRIFT DAYS ANAL-
SAMPLE ID TEST FIX CLIENT SAMPLE ID pCi/g g FAC TION % % min keV KeV HELD PREPARED YZED DETECTOR

Preparation batch 7084-024 2σ prep error 15.0 % Reference Lab Notebook 7084 pg. 024

R312194-01	B17RV3	0.95	57.2	313	29	01/10/04	01/16	PD,03,00
R312194-02	B17RX0	14	59.8	233	30	01/10/04	01/16	PD,04,00
R312194-03	B17RX4	0.71	65.9	455	30	01/10/04	01/16	PD,07,00
R312194-04	B17RY1	0.92	64.3	401	30	01/10/04	01/16	PD,04,00
R312194-05	B17RY8	0.65	74.8	989	30	01/10/04	01/16	PD,03,00
R312194-06	B17T00	0.30	66.6	995	29	01/10/04	01/16	PD,04,00
R312194-07	B17T03	0.46	75.3	1019	25	01/10/04	01/16	PD,07,00
R312194-08	LCS (QC ID=46517)	0.14	57.2	406		01/10/04	01/17	PD,03,00
R312194-09	BLK (QC ID=46518)	0.39	57.2	406		01/10/04	01/17	PD,04,00
R312194-10	Duplicate (R312194-01) (QC ID=46519)	0.96	57.2	407	30	01/10/04	01/17	PD,07,00

Nominal values and limits from method 0.050 57.2 100 180

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 02/02/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2479

Test GAM Matrix SOLID

SDG 7677

Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford

Contract No. 630

Contract SDG H2479

PROCEDURES	REFERENCE	GAMMA_GS
	CP-061	Determination of Moisture Content in Solid Samples rev 1
	CP-100	Ge(Li) Preparation for Commercial Samples, rev 5

AVERAGES \pm 2 SD
FOR 10 SAMPLES

MDA 1.9 \pm 8.5
YIELD _____ \pm _____

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-LMS

Version 3.06

Report date 02/02/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2479

LAB METHOD SUMMARY

CARBON 14 IN SOIL

LIQUID SCINTILLATION COUNTING

Test C Matrix SOLID

SDG 7677

Contact Melissa C. Mannion

Client Hanford

Contract No. 630

Contract SDG H2479

RESULTS

LAB RAW SUF-
SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Carbon 14

Preparation batch 7084-024

R312194-01	7677-001	B17RV3	U
R312194-02	7677-002	B17RX0	U
R312194-03	7677-003	B17RX4	U
R312194-04	7677-004	B17RY1	U
R312194-05	7677-005	B17RY8	U
R312194-06	7677-006	B17T00	U
R312194-07	7677-007	B17T03	U
R312194-08	7677-008	LCS (QC ID=46517)	ok
R312194-09	7677-009	BLK (QC ID=46518)	U
R312194-10	7677-010	Duplicate (R312194-01)	- U

Nominal values and limits from method RDLs (pCi/g) 50
200-LW-1/LW-2 Characterization-Soil

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-
SAMPLE ID	TEST	FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD PREPARED YZED DETECTOR

Preparation batch 7084-024 2σ prep error 10.0 % Reference Lab Notebook 7084 pg. 024

R312194-01	B17RV3	2.7	0.339	100	100	25	01/08/04	01/12	LSC-007
R312194-02	B17RX0	2.7	0.338	100	100	26	01/08/04	01/12	LSC-007
R312194-03	B17RX4	2.2	0.408	100	100	26	01/08/04	01/12	LSC-007
R312194-04	B17RY1	2.3	0.390	100	100	26	01/08/04	01/12	LSC-007
R312194-05	B17RY8	2.5	0.370	100	100	26	01/08/04	01/12	LSC-007
R312194-06	B17T00	2.8	0.329	100	100	25	01/08/04	01/12	LSC-007
R312194-07	B17T03	2.7	0.339	100	100	21	01/08/04	01/12	LSC-007
R312194-08	LCS (QC ID=46517)	4.5	0.300	100	45	01/08/04	01/12	LSC-007	
R312194-09	BLK (QC ID=46518)	3.1	0.300	100	100	01/08/04	01/12	LSC-007	
R312194-10	Duplicate (R312194-01) (QC ID=46519)	2.2	0.424	100	100	25	01/08/04	01/12	LSC-007

Nominal values and limits from method 50 0.300 50 180

METHOD SUMMARIES

Page 9

SUMMARY DATA SECTION

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Lab id EBRLINE

Protocol Hanford

Version Ver 1.0

Form DVD-LMS

Version 3.06

Report date 02/02/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2479

LAB METHOD SUMMARY, cont.

CARBON 14 IN SOIL

LIQUID SCINTILLATION COUNTING

Test C Matrix SOLID

SDG 7677

Contact Melissa C. Mannion

Client Hanford

Contract No. 630

Contract SDG H2479

PROCEDURES	REFERENCE	C14_COX_LSC
	CP-251	Tritium/Carbon-14 Oxidation, rev 5

AVERAGES \pm 2 SD	MDA	<u>2.8</u>	\pm	<u>1.3</u>
FOR 10 SAMPLES	YIELD	<u>100</u>	\pm	<u>0</u>

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Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-LMS

Version 3.06

Report date 02/02/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2479

LAB METHOD SUMMARY

TRITIUM IN SOIL

LIQUID SCINTILLATION COUNTING

Test H Matrix SOLID
SDG 7677
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H2479

RESULTS

LAB	RAW	SUF-		
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Tritium

Preparation batch 7084-024

R312194-01	7677-001	B17RV3	350
R312194-02	7677-002	B17RX0	10.2
R312194-03	7677-003	B17RX4	40.8
R312194-04	7677-004	B17RY1	798
R312194-05	7677-005	B17RY8	247
R312194-06	7677-006	B17T00	240
R312194-07	7677-007	B17T03	U
R312194-08	7677-008	LCS (QC ID=46517)	ok
R312194-09	7677-009	BLK (QC ID=46518)	U
R312194-10	7677-010	Duplicate (R312194-01)	ok

Nominal values and limits from method RDLs (pCi/g) 400
200-LW-1/LW-2 Characterization-Soil

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD PREPARED	YZED DETECTOR

Preparation batch 7084-024 2σ prep error 10.0 % Reference Lab Notebook 7084 pg. 024

R312194-01	B17RV3	0.53	20.6	33	44	31	01/17/04	01/18	LSC-005
R312194-02	B17RX0	0.31	21.6	31	120	32	01/17/04	01/18	LSC-005
R312194-03	B17RX4	0.32	20.7	33	120	32	01/17/04	01/18	LSC-005
R312194-04	B17RY1	0.83	20.6	33	20	32	01/17/04	01/18	LSC-005
R312194-05	B17RY8	0.43	22.1	32	59	32	01/17/04	01/18	LSC-005
R312194-06	B17T00	0.43	21.0	33	62	31	01/17/04	01/18	LSC-005
R312194-07	B17T03	0.30	21.5	33	120	27	01/17/04	01/18	LSC-005
R312194-08	LCS (QC ID=46517)	0.32	20.0	33	120		01/17/04	01/18	LSC-005
R312194-09	BLK (QC ID=46518)	0.31	20.0	33	120		01/17/04	01/18	LSC-005
R312194-10	Duplicate (R312194-01) (QC ID=46519)	0.49	20.9	34	45	32	01/17/04	01/19	LSC-005

Nominal values and limits from method 400 20.0 25 180

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SAMPLE DELIVERY GROUP H2479

Test H Matrix SOLID

SDG 7677

Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.

TRITIUM IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford

Contract No. 630

Contract SDG H2479

PROCEDURES REFERENCE 906.0_H3_LSC
CP-218 Tritium in Soil Samples by Azeotropic
Distillation, rev 1

AVERAGES \pm 2 SD MDA 0.43 \pm 0.33
FOR 10 SAMPLES YIELD 33 \pm 2

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Test NI L Matrix SOLID

SDG 7677

Contact Melissa C. Mannion

LAB METHOD SUMMARY

NICKEL 63 IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford

Contract No. 630

Contract SDG H2479

RESULTS

LAB RAW SUF-
SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Nickel 63

Preparation batch 7084-024

R312194-01	7677-001	B17RV3	U
R312194-02	7677-002	B17RX0	165
R312194-03	7677-003	B17RX4	U
R312194-04	7677-004	B17RY1	U
R312194-05	7677-005	B17RY8	U
R312194-06	7677-006	B17T00	U
R312194-07	7677-007	B17T03	U
R312194-08	7677-008	LCS (QC ID=46517)	ok
R312194-09	7677-009	BLK (QC ID=46518)	U
R312194-10	7677-010	Duplicate (R312194-01)	- U

Nominal values and limits from method RDLs (pCi/g) 30
200-LW-1/LW-2 Characterization-Soil

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-
SAMPLE ID	TEST	FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD PREPARED YZED DETECTOR

Preparation batch 7084-024 2σ prep error 10.0 % Reference Lab Notebook 7084 pg. 024

R312194-01	B17RV3	2.3	0.500	86	100	31	01/16/04	01/18	LSC-007
R312194-02	B17RX0	2.2	0.500	93	100	32	01/16/04	01/18	LSC-007
R312194-03	B17RX4	2.3	0.500	87	100	32	01/16/04	01/18	LSC-007
R312194-04	B17RY1	2.4	0.500	86	100	32	01/16/04	01/18	LSC-007
R312194-05	B17RY8	2.4	0.500	82	100	32	01/16/04	01/18	LSC-007
R312194-06	B17T00	2.4	0.500	87	100	31	01/16/04	01/18	LSC-007
R312194-07	B17T03	2.4	0.500	86	100	27	01/16/04	01/18	LSC-007
R312194-08	LCS (QC ID=46517)	2.3	0.500	93	100		01/16/04	01/18	LSC-007
R312194-09	BLK (QC ID=46518)	2.1	0.500	95	100		01/16/04	01/18	LSC-007
R312194-10	Duplicate (R312194-01)	2.4	0.500	85	100	32	01/16/04	01/19	LSC-007
	(QC ID=46519)								

Nominal values and limits from method 30 0.500 30-105 50 180

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Test NI L Matrix SOLID

SDG 7677

Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.

NICKEL 63 IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford

Contract No. 630

Contract SDG H2479

PROCEDURES	REFERENCE	NI63_LSC
CP-061	Determination of Moisture Content in Solid Samples rev 1	
CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2	
CP-280	Nickel-63 Purification, rev 0	

AVERAGES \pm 2 SD	MDA <u>2.3</u> \pm <u>0.21</u>
FOR 10 SAMPLES	YIELD <u>88</u> \pm <u>8</u>

METHOD SUMMARIES

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SDG 7677
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SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- * LAB SAMPLE ID is the lab's primary identification for a sample.
- * DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- * CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- * QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

- * All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

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PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

- * The preparation batches are shown in the same order as the Method Summary Reports are printed.
- * Only analyses of planchets relevant to the SDG are included.
- * Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- * The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

- * TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- * SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- * The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- * PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- * For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- * The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

- * TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- * The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

- * ERRORS can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- * A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- * When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

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DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

- J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.
- B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

- L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.
- H Similar to 'L' except the recovery was high.
- P The RESULT is 'preliminary'.
- X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.
- 2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

- * An MDA is underlined if it is bigger than its RDL.

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DATA SHEET

- * An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.
- * A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- * When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- * An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- * REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 1. The error of RESULT, including that introduced by rounding the result prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

 2. The error of ADDED.
 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits for the recovery.
- * The recovery is underlined if it is outside either of these ranges.

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DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- * The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTS divided by their average expressed as a percent.

If both RESULTS are less than their MDAs, no RPD is computed and a '-' is printed.

For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

- * The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTS prior to printing.

If this limit is labeled TOT, it includes the preparation error in the RESULTS. If labeled CNT, it does not.

This value reported for this limit is at most 999.

- * The second limit for the RPD is the larger of:

1. A fixed percentage specified in the protocol.

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DUPLICATE

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

- * The RPD is underlined if it is greater than either limit.
- * If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

- * The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- * An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- * REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

- * The first, computed limits for the recovery reflect:

1. The errors of the two RESULTS, including those introduced by rounding them prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

2. The error of ADDED.

3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

- * The second limits are protocol defined upper and lower QC limits

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MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

- * The recovery is underlined (out of spec) if it is outside either of these ranges.

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METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

- * Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

- * The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

- * If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

The J and X flags are as on the data sheet.

- * Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- * Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

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METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

- * Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
 - * If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.
- MDAs are underlined if greater than the printed RDL.
- * Aliquots are underlined if less than the nominal value specified for the method.
 - * Preparation factors are underlined if greater than the nominal value specified for the method.
 - * Dilution factors are underlined if greater than the nominal value specified for the method.
 - * Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.
 - * Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.
 - * Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

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Contract No. 630
Case no SDG H2479

METHOD SUMMARY

- * Count times are underlined if less than the nominal value specified for the method.
- * Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- * Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- * Days Held are underlined if greater than the holding time specified in the protocol.
- * Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1+3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

REPORT GUIDES

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SUMMARY DATA SECTION

Page 49

Lab id EBRINE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 02/02/04

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2479

SDG 7677
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2479

METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

REPORT GUIDES

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SUMMARY DATA SECTION

Page 50

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 02/02/04

FLUOR Hanford Inc.		CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-025-045		Page 1 of 1	
Collector Pope/Pfister/Hughes		Company Contact TRENT, STEVE		Telephone No. 373-5689		Project Coordinator TRENT, SJ		Price Code 81N ^{81N 12/10/03} Data Turnaround ^{45 Days} 12/17/03	
Project Designation 200-LW-1/LW-2 Characterization - Soil		Sampling Location 216-B-58 #2 (35-37.5 FT)		H2479 (7677)		SAF No. F03-025		Air Quality <input type="checkbox"/> ⁸⁰⁰ 045 Days ^{230 DAYS}	
Ice Chest No. GPP-03-027		Field Logbook No. HNF-D-336-1		COA 119143ES10		Method of Shipment FEDERAL EXPRESS		DMB 12/31/03	
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. See PTK				Bill of Lading/Air Bill No. See PTK			
POSSIBLE SAMPLE HAZARDS/REMARKS Radioactive Tie To: B17RV3 Special Handling and/or Storage		Preservation		Cool 4C	None				
		Type of Container		G	G/P				
		No. of Container(s)		1					
		Volume		250mL	250mL				
SAMPLE ANALYSIS		See item (1) in Special Instructions		See item (2) in Special Instructions					
Sample No.	Matrix *	Sample Date	Sample Time						
B17RV3	SOIL	12.18.03	0715		X				
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS MD 12-14-03				Matrix * S=Soil SE=Sediment SL=Solid SLX=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other	
Relinquished By/Removed From JSAPe/12/18/03 1430		Received By/Stored In MD 12/18/03 1430		The laboratory is to analyze pH within 24 hours of sample receipt. The laboratory is to report kerosene range organics from the WTPH-D analysis. See SAF COC Comments for holding time issues.					
Relinquished By/Removed From MD-026 Fridge #2 12/30/03 0945		Received By/Stored In Greg Thomas / Greg Thomas 12/30/03		(1) Chromium Hex - 7196; NO2/NO3 - 353.2; Sulfides - 9030; Oil & Grease - 415.1 MD 12-14					
Relinquished By/Removed From Greg Thomas / Greg Thomas 12/30/03		Received By/Stored In Fed Ex		(2) Nickel-63; Gamma Spec - Radium (Radium-226, Radium-228); Technetium-99; Isotopic Thorium (Thorium-232); Tritium - H3; Carbon-14; Strontium-89,90 -- Total Sr					
Relinquished By/Removed From Fed Ex		Received By/Stored In MD 12-31-03 1000							
Relinquished By/Removed From		Received By/Stored In							
Relinquished By/Removed From		Received By/Stored In							
Relinquished By/Removed From		Received By/Stored In							
LABORATORY SECTION		Received By		Title		Date/Time			
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time			

FLUOR Hanford Inc.		CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-025-010		Page 1 of 1		
Collector Pope/Pfister/Hughes		Company Contact TRENT, STEVE		Telephone No. 373-5689		Project Coordinator TRENT, SJ		Price Code 81234		
Project Designation 200-LW-1/LW-2 Characterization - Soil		Sampling Location 216-B-58 #2 (12.5-15 FT)		H2479 (7677)		SAF No. F03-025		Data Turnaround 0 45 Days		
Ice Chest No. GPR-03-027		Field Logbook No. HNF-10-336-1		COA 119143ES10		Method of Shipment FEDERAL EXPRESS		Air Quality 0 mdd 12/30/03		
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. See PTR		Bill of Lading/Air Bill No. See PTR						
POSSIBLE SAMPLE HAZARDS/REMARKS Radioactive Tieto: B17RX2 Special Handling and/or Storage				Preservation	Cool 4C	None				
				Type of Container	G	G/P				
				No. of Container(s)	1					
				Volume	250mL	250mL				
SAMPLE ANALYSIS				See item (1) in Special Instructions.	See item (2) in Special Instructions.					
Sample No.	Matrix *	Sample Date	Sample Time							
B17RX0	SOIL	12/17/03	0900		X					
CHAIN OF POSSESSION				Sign/Print Names		SPECIAL INSTRUCTIONS				
Relinquished By/Removed From JSP/OK/12/17/03 1630		Date/Time		Received By/Stored In M0624/12/17/01 1630		The laboratory is to analyze within 24 hours of sample receipt. The laboratory is to report kerosene range organics from the WTT/H-D analysis. See SAF COC Comments for holding time issues.				
Relinquished By/Removed From M0-026/Fridge #2 12/30/03		Date/Time 0945		Received By/Stored In Greg Thomas Greg Thomas 12/30/03		(1) Chromium-Hex - 7196; NO2/NO3 - 353.2; Sulfides - 9030; Oil & Grease - 413.1				
Relinquished By/Removed From Greg Thomas/Greg Thomas 12/30/03		Date/Time 0945		Received By/Stored In Fed Ex		(2) Nickel-63; Gamma Spec - Radium (Radium-226, Radium-228); Technetium-99; Isotopic Thorium (Thorium-232); Tritium - H3; Carbon-14; Strontium-89,90 -- Total Sr				
Relinquished By/Removed From Fed Ex		Date/Time		Received By/Stored In 12-31-03 1000						
Relinquished By/Removed From		Date/Time		Received By/Stored In						
Relinquished By/Removed From		Date/Time		Received By/Stored In						
LABORATORY SECTION		Received By		Title		Date/Time				
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time				

ADT 12/30/03

FLUOR Hanford Inc.		CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-025-011		Page 1 of 1					
Collector Pope/Pfister/Hughes		Company Contact TRENT, STEVE		Telephone No. 373-5689		Project Coordinator TRENT, SJ		Price Code 8N 84		Data Turnaround 45 Days			
Project Designation 200-LW-1/LW-2 Characterization - Soil		Sampling Location 216-B-58 #2 (17.5-20 FT)		H2479 (7677)		SAF No. F03-025		Air Quality *21		30 DAYS			
Ice Chest No. GPP-03-027		Field Logbook No. HOF-N-336-1		COA 119143ES10		Method of Shipment FEDERAL EXPRESS							
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. See PTR				Bill of Lading/Air Bill No. See PTR							
POSSIBLE SAMPLE HAZARDS/REMARKS Radioactive Tlcto: B17RX6 Special Handling and/or Storage				Preservation		Cool 4C	None						
				Type of Container		G	G/P						
				No. of Container(s)			1						
				Volume		250mL	250mL						
SAMPLE ANALYSIS				See item (1) in Special Instructions.		See item (2) in Special Instructions.							
Sample No.		Matrix *		Sample Date		Sample Time							
B17RW7		SOIL		12/17/03		10:25							
B17RX4		SOIL		12-17-3		10:25							
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *	
Relinquished By/Removed From J.S. Pope / 12/17/03 1630				Received By/Stored In MO-026 / 12/17/03 1630				The laboratory is to analyze pH within 24 hours of sample receipt. The laboratory is to report kerosene-range organics from the WTPH-D analysis. See SAF COC Comments for holding time issues.				S=Soil SE=Sediment SO=Solid SI=Sludge W=Water O=Oil A=Air DS=Drunn Solids DL=Drunn Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other	
Relinquished By/Removed From MO-026 / 12/30/03				Received By/Stored In Greg Thomas / 12/30/03				(1) Chromium Hex - 7196; NO2/NO3 - 355-2; Sulfides - 0030; Oil & Grease - 413-1					
Relinquished By/Removed From Greg Thomas / 12/30/03				Received By/Stored In Fed Ex				(2) Nickel-63; Gamma Spec - Radium (Radium-226, Radium-228); Technetium-99; Isotopic Thorium (Thorium-232); Tritium - H3; Carbon-14; Strontium-89,90 -- Total Sr					
Relinquished By/Removed From Fed Ex				Received By/Stored In 26 / 12/31/03 1000									
Relinquished By/Removed From				Received By/Stored In									
Relinquished By/Removed From				Received By/Stored In									
Relinquished By/Removed From				Received By/Stored In									
LABORATORY SECTION		Received By		Title		Date/Time							
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time							

A-6003-618(03/03)

FLUOR Hanford Inc.		CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				*AT 12/30/03 F03-025-013		Page 1 of 1	
Collector Pope/Pfister/Hughes		Company Contact TRENT, STEVE		Telephone No. 373-5689		Project Coordinator TRENT, SJ		Price Code 8N8H ^{49 14/20} Data Turnaround ^{45 Days} 30 Days ^{14/1/03}	
Project Designation 200-LW-1/LW-2 Characterization - Soil		Sampling Location 216-B-58 #2 (22.5-25 FT)		H2479 (7677)		SAF No. F03-025		Air Quality <input type="checkbox"/> *21	
Ice Chest No. GPP-03-027		Field Logbook No. HNT-10-380-1		COA 119143ES10		Method of Shipment FEDERAL EXPRESS			
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. See PTR		Bill of Lading/Air Bill No. See PTR					
POSSIBLE SAMPLE HAZARDS/REMARKS Radioactive TILTD: B17RYD Special Handling and/or Storage		Preservation		Cool 4C	None				
		Type of Container		G/P	G/P				
		No. of Container(s)		1	1				
		Volume		250mL	250mL				
SAMPLE ANALYSIS				See item (1) in Special Instructions.	See item (2) in Special Instructions.				
Sample No.	Matrix *	Sample Date	Sample Time						
B17RY8	SOIL	12/17/03	1330		X				
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix * S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WJ=Wipe L=Liquid V=Vegetation X=Other	
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time				
JSAOME/48/10		12/17/03 1630	MO-026/Hidrot#2		12/17/03 1630				
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time				
MO-26/Fridge #2		12/30/03 0945	Greg Thomas & Amy Thomas		12/30/03 0945				
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time				
Greg Thomas & Amy Thomas		12/30/03 0945	Fed Ex						
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time				
FED EX			12-31-03 10 CO						
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time				
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time				
LABORATORY SECTION		Received By		Title		Date/Time			
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time			

FLUOR Hanford Inc.		CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-025-046		Page 1 of 1	
Collector Pope/Pfister/Hughes		Company Contact TRENT, STEVE		Telephone No. 373-5689		Project Coordinator TRENT, SJ		Price Code 8N-8H ^{Am H/LK} Data Turnaround ^{45 Days}	
Project Designation 200-LW-1/LW-2 Characterization - Soil		Sampling Location 216-B-58 #2 (52.5-55 FT)		12-179 (7677)		SAF No. F03-025		Air Quality <input type="checkbox"/> BDK * 21 30 DAYS	
Ice Chest No. GPP-03-027		Field Logbook No. HNF-U-3361		COA 1191436510		Method of Shipment FEDERAL EXPRESS			
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. See PTR		Bill of Lading/Air Bill No. See PTR					
POSSIBLE SAMPLE HAZARDS/REMARKS Radioactive Tie To: B17T02 Special Handling and/or Storage		Preservation		Cool 4C	None				
		Type of Container		G	G/P				
		No. of Container(s)		1	1				
		Volume		250mL	250mL				
SAMPLE ANALYSIS				See item (1) in Special Instructions.	See item (2) in Special Instructions.				
Sample No.	Matrix *	Sample Date	Sample Time						
B17T00	SOIL	12-18-03	0945		X				
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *	
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		<p>MO 12-10-02</p> <p>The laboratory is to analyze pH within 24 hours of sample receipt. The laboratory is to report kerosene range organics from the WTPH-D analysis. See SAF COC Comments for holding time issues.</p> <p>MO 12-14-03</p> <p>(1) Chromium-Hex - 7146; NO2/NO3 - 353.2; Sulfides - 9030; Oil & Grease - 411</p> <p>(2) Nickel-63; Gamma Spec - Radium (Radium-226, Radium-228); Technetium-99; Isotopic Thorium (Thorium-232); Tritium - H3; Carbon-14; Strontium-89,90 -- Total Sr</p>	
J. R. Pfeiffer		12/18/03 1430		MO-026/ Fred Ex #2		12/18/03 1430			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
MO-026/ Fred Ex #2		12/30/03 0945		Greg Thomas & Amy Thomas		12/30/03			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Greg Thomas & Amy Thomas		12/30/03		Fred Ex					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Fred Ex				Fred Ex		12-31-03 1000			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
LABORATORY SECTION		Received By		Title		Date/Time			
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time			

*BT 12/30/03

FLUOR Hanford Inc.		CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-025-047		Page 1 of 1	
Collector Pope/Pfister/Hughes		Company Contact TRENT, STEVE		Telephone No. 373-5689		Project Coordinator TRENT, SJ		Price Code BN 8# ^{AL-1777} Data Turnaround	
Project Designation 200-LW-1/LW-2 Characterization - Soil		Sampling Location <u>97.5-100 FT</u> 216-B-58 #2 (52.5-55 FT) <u>EDN 12-23-3</u>		SAF No. F03-025		Air Quality <input checked="" type="checkbox"/> ^{#25} <u>45 Days</u> ^{12/1/03}		<u>21 30 DAYS</u>	
Ice Chest No. <u>GPP-03-027</u>		Field Logbook No. <u>HNF-D-3361</u>		COA 119143ES10		Method of Shipment FEDERAL EXPRESS			
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. <u>Su PIR</u>		Bill of Lading/Air Bill No. <u>Su PIR</u>					
POSSIBLE SAMPLE HAZARDS/REMARKS <u>Radioactive Tie TO: B17T05</u> Special Handling and/or Storage				Preservation		Cool 4C	None		
				Type of Container			G/P		
				No. of Container(s)			1		
				Volume		250mL	250mL		
SAMPLE ANALYSIS				See item (1) in Special Instructions.		See item (2) in Special Instructions.			
Sample No.		Matrix *		Sample Date		Sample Time			
B17T03		SOIL		<u>12-22-3</u>		<u>10:05</u>		X	
CHAIN OF POSSESSION				Sign/Print Names		SPECIAL INSTRUCTIONS			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		<u>TMS 12-16-03</u> The laboratory is to analyze pH within 24 hours of sample receipt. The laboratory is to report kerosene range organics from the WTPH-17 analysis. See SAF COC Comments for holding time issues. (1) Chromium Hex - 7196; NO2/NO3 - 353.2; Sulfides - 9030; Oil & Grease - 413.1 (2) Nickel-63; Gamma Spec - Radium (Radium-226, Radium-228); Technetium-99; Isotopic Thorium (Thorium-232); Tritium - H3; Carbon-14; Strontium-89,90 - Total Sr <u>TMS 12-16</u>	
<u>Kevin NGAGE</u>		<u>12:05</u>		<u>12-22-3</u>		<u>12:05</u>			
<u>Mo-026 Fridge #1</u>		<u>09/15</u>		<u>Greg Thomas</u>		<u>12/30/03</u>			
<u>Greg Thomas</u>		<u>12/30/03</u>		<u>Fed Ex</u>					
<u>Fed Ex</u>				<u>12-31-03</u>		<u>1000</u>			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
LABORATORY SECTION		Received By		Title		Date/Time			
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time			



EBERLINE
SERVICES

RICHMOND, CA LABORATORY
SAMPLE RECEIPT CHECKLIST

Client: FLR Date/Time received 1000 12-31-03
CoC No. F03-025-010,011,013,014,045,046
Container I.D. No. GRP-03-027 Requested TAT (Days) 21 P.O. Received Yes [] No []

INSPECTION

1. Custody seals on shipping container intact? Yes [☒] No [] N/A []
2. Custody seals on shipping container dated & signed? Yes [☒] No [] N/A []
3. Custody seals on sample containers intact? Yes [☒] No [] N/A []
4. Custody seals on sample containers dated & signed? Yes [☒] No [] N/A []
5. Packing material is: Wet [] Dry [☒]
6. Number of samples in shipping container: 7
7. Number of containers per sample: 1 (Or see CoC)
8. Samples are in correct container Yes [☒] No []
9. Paperwork agrees with samples? Yes [☒] No []
10. Samples have: Tape [] Hazard labels [] Rad labels [☒] Appropriate sample labels []
11. Samples are: In good condition [☒] Leaking [] Broken Container [] Missing []
12. Samples are: Preserved [] Not preserved [☒] pH Preservative
13. Describe any anomalies: NO TIME INDICATED ON CONTAINER
OF BIZRYI
14. Was P.M. notified of any anomalies? Yes [☒] No [] Date 12-31-03
15. Received by [Signature] Date: 12-31-03 Time: 1000

Customer Sample No.	cpm	mR/hr	wipe	Customer Sample No.	cpm	mR/hr	wipe
<u>BIZRYI</u>	<u>800</u>						
<u>all other samples</u>	<u>240</u>						

Ion Chamber Ser. No.

Calibration date

Alpha Meter Ser. No.

Calibration date

Beta/Gamma Meter Ser. No. 106261

Calibration date 2-14-03



21 January 2004

Mr. Steve Trent
Fluor Hanford Inc.
825 Jadwin Ave.
Richland, WA 99352

Subject: Contract No. 630
Analytical Data Package



Dear Mr. Trent:

Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	0312L462
SDG #	H2479
SAF #	F03-025
Date Received	12-31-03
# Samples	7
Matrix	Soil
Volatiles	
Semivolatiles	
Pest/PCB	
DRO/GRO/KRO	
Herbicides	
GC Alcohol	
Metals	
Inorganics	X

The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager

000001

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-025 H2479



DATE RECEIVED: 12/31/03

LVL LOT # :0312L462

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B17RX0						
% SOLIDS	001	S	04L%S001	12/17/03	01/02/04	01/05/04
% SOLIDS	001 REP	S	04L%S001	12/17/03	01/02/04	01/05/04
CHROMIUM VI	001	S	04LVI001	12/17/03	01/09/04	01/09/04
NITRATE NITRITE	001	S	04LN3001	12/17/03	01/08/04	01/08/04
OIL & GREASE BY GRAV	001	S	04LOG001	12/17/03	01/12/04	01/12/04
SULFIDE	001	S	04LSDA02	12/17/03	01/14/03	01/14/03
B17RX4						
% SOLIDS	002	S	04L%S001	12/17/03	01/02/04	01/05/04
CHROMIUM VI	002	S	04LVI001	12/17/03	01/09/04	01/09/04
NITRATE NITRITE	002	S	04LN3001	12/17/03	01/08/04	01/08/04
OIL & GREASE BY GRAV	002	S	04LOG001	12/17/03	01/12/04	01/12/04
SULFIDE	002	S	04LSDA02	12/17/03	01/14/03	01/14/03
B17RY8						
% SOLIDS	003	S	04L%S001	12/17/03	01/02/04	01/05/04
CHROMIUM VI	003	S	04LVI001	12/17/03	01/09/04	01/09/04
NITRATE NITRITE	003	S	04LN3001	12/17/03	01/08/04	01/08/04
OIL & GREASE BY GRAV	003	S	04LOG001	12/17/03	01/12/04	01/12/04
SULFIDE	003	S	04LSDA02	12/17/03	01/14/03	01/14/03
B17RY1						
% SOLIDS	004	S	04L%S001	12/17/03	01/02/04	01/05/04
CHROMIUM VI	004	S	04LVI001	12/17/03	01/09/04	01/09/04
NITRATE NITRITE	004	S	04LN3001	12/17/03	01/08/04	01/08/04
OIL & GREASE BY GRAV	004	S	04LOG001	12/17/03	01/12/04	01/12/04
SULFIDE	004	S	04LSDA02	12/17/03	01/14/03	01/14/03
B17RV3						
% SOLIDS	005	S	04L%S001	12/18/03	01/02/04	01/05/04
CHROMIUM VI	005	S	04LVI001	12/18/03	01/09/04	01/09/04

000002

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-025 H2479

DATE RECEIVED: 12/31/03

LVL LOT # :0312L462

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRATE NITRITE	005	S	04LN3001	12/18/03	01/08/04	01/08/04
OIL & GREASE BY GRAV	005	S	04LOG001	12/18/03	01/12/04	01/12/04
SULFIDE	005	S	04LSDA02	12/18/03	01/14/03	01/14/03

B17T00

% SOLIDS	006	S	04L%S001	12/18/03	01/02/04	01/05/04
CHROMIUM VI	006	S	04LVI001	12/18/03	01/09/04	01/09/04
NITRATE NITRITE	006	S	04LN3001	12/18/03	01/08/04	01/08/04
OIL & GREASE BY GRAV	006	S	04LOG001	12/18/03	01/12/04	01/12/04
SULFIDE	006	S	04LSDA02	12/18/03	01/14/03	01/14/03

B17T03

% SOLIDS	007	S	04L%S001	12/22/03	01/02/04	01/05/04
CHROMIUM VI	007	S	04LVI001	12/22/03	01/09/04	01/09/04
CHROMIUM VI	007 REP	S	04LVI001	12/22/03	01/09/04	01/09/04
CHROMIUM VI	007 MS	S	04LVI001	12/22/03	01/09/04	01/09/04
CHROMIUM VI	007 MSD	S	04LVI001	12/22/03	01/09/04	01/09/04
NITRATE NITRITE	007	S	04LN3001	12/22/03	01/08/04	01/08/04
NITRATE NITRITE	007 REP	S	04LN3001	12/22/03	01/08/04	01/08/04
NITRATE NITRITE	007 MS	S	04LN3001	12/22/03	01/08/04	01/08/04
OIL & GREASE BY GRAV	007	S	04LOG001	12/22/03	01/12/04	01/12/04
OIL AND GREASE BY GR	007 REP	S	04LOG001	12/22/03	01/12/04	01/12/04
OIL AND GREASE BY GR	007 MS	S	04LOG001	12/22/03	01/12/04	01/12/04
SULFIDE	007	S	04LSDA02	12/22/03	01/14/03	01/14/03
SULFIDE	007 REP	S	04LSDA02	12/22/03	01/14/03	01/14/03
SULFIDE	007 MS	S	04LSDA02	12/22/03	01/14/03	01/14/03

LAB QC:

CHROMIUM VI	MB1	S	04LVI001	N/A	01/09/04	01/09/04
CHROMIUM VI	MB1 BS	S	04LVI001	N/A	01/09/04	01/09/04
CHROMIUM VI	MB1 BSD	S	04LVI001	N/A	01/09/04	01/09/04
NITRATE NITRITE	MB1	W	04LN3001	N/A	01/08/04	01/08/04
NITRATE NITRITE	MB1 BS	W	04LN3001	N/A	01/08/04	01/08/04
OIL & GREASE BY GRAV	MB1	S	04LOG001	N/A	01/12/04	01/12/04
OIL AND GREASE BY GR	MB1 BS	S	04LOG001	N/A	01/12/04	01/12/04

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Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-025 H2479

DATE RECEIVED: 12/31/03

LVL LOT # :0312L462

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
OIL AND GREASE BY GR	MB1 BSD	S	04LOG001	N/A	01/12/04	01/12/04
SULFIDE	MB1	S	04LSDA02	N/A	01/14/03	01/14/03
SULFIDE	MB1 BS	S	04LSDA02	N/A	01/14/03	01/14/03

000004



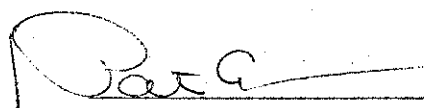
Analytical Report

Client: TNU-HANFORD F03-025 H2479
LVL#: 0312L462

W.O.#: 11343-606-001-9999-00
Date Received: 12-31-03

INORGANIC NARRATIVE

1. This narrative covers the analyses of 7 soil samples.
2. The samples were prepared and analyzed in accordance with the methods checked on the attached glossary.
3. Sample holding times as required by the method and/or contract were met with the exception of Sulfide that were received past hold.
4. The results presented in this report are derived from samples that met LVL's sample acceptance policy with the exception of Sulfide as noted on the Sample Receipt Checklist.
5. The method blanks were within the method criteria.
6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS for Oil and Grease was within the 20% Relative Percent Difference (RPD) control limit.
7. The matrix spike recoveries for Chromium VI, Nitrate Nitrite, Oil and Grease and Sulfide were within the 75-125% control limits.
8. The replicate analyses for Percent Solids, Chromium VI, Nitrate Nitrite, Oil and Grease and Sulfide were within the 20% RPD control limit.
9. Results for solid samples are reported on a dry weight basis.
10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.


Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

njpl12-462

01-20-04
Date

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 21 pages.

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WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	<u>ASTM</u>	<u>SW846</u>	<u>OTHER</u>
% Ash	— D2216-80		
% Moisture	— D2216-80		— ILMO4.0 (e)
% Solids	— <input checked="" type="checkbox"/> D2216-80		— ILMO4.0 (e)
% Volatile Solids	— D2216-80		
ASTM Extraction in Water	— D3987-81/85		
BTU	— D240-87		
CEC		— 9081	— c
Chromium VI		<input checked="" type="checkbox"/> 3060A/7196A	
Corrosivity ___ by coupon ___ by pH		— 1110(mod) — 9045C	
Cyanide, Total		— 9010B	— ILMO4.0 (e)
Cyanide, Reactive		— Section 7.3/9014	
Halides, Extractable Organic		— 9020B	— EPA 600/4/84-008
Halides, Total		— 9020B	— EPA 600/4/84-008
EP Toxicity		— 1310A	
Flash Point		— 1010	
Ignitability		— 1010	
Oil & Grease		<input checked="" type="checkbox"/> 9071A	<input checked="" type="checkbox"/> 413.1 (mod.)
Carbon, Total Organic		— 9060	— Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	— D240-87(mod)	— 5050	
Petroleum Hydrocarbons, Total Recoverable		— 9071	— EPA 418.1
pH, Soil		— 9045C	
Sulfide, Reactive		— Section 7.3/9030B	
Sulfide		<input checked="" type="checkbox"/> 9030B(mod)	
Specific Gravity	— D1429-76C/	— D5057-90	
Sulfur, Total		— 9056	
Synthetic Preparation Leach		— 1312	
Paint Filter		— 9095A	
Other: <i>Nitrate Nitrite</i>		Method: <i>EPA 353.2 (mod.)</i>	
Other:		Method	

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METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

- U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- * = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

- MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LC = Laboratory Control Sample.
NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.
2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).
3. Test Methods for Evaluating Solid Waste (USEPA SW-846).
 - a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).
 - b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).
 - c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).
 - d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).
 - e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.
 - f. Code of Federal Regulations.

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/16/04

CLIENT: TNUHANFORD F03-025 H2479
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0312L462

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING	DILUTION
					LIMIT	FACTOR
-001	B17RX0	% Solids	86.8	%	0.01	1.0
		Chromium VI	0.23 u	MG/KG	0.23	1.0
		Nitrate Nitrite	12.1	MG/KG	0.40	2.0
		Oil & Grease Gravimetri	1350	MG/KG	768	1.0
		Sulfide	33.0	MG/KG	22.3	1.0
-002	B17RX4	% Solids	96.7	%	0.01	1.0
		Chromium VI	0.21 u	MG/KG	0.21	1.0
		Nitrate Nitrite	1.5	MG/KG	0.17	1.0
		Oil & Grease Gravimetri	690 u	MG/KG	690	1.0
		Sulfide	25.8	MG/KG	20.2	1.0
-003	B17RY8	% Solids	97.0	%	0.01	1.0
		Chromium VI	0.21 u	MG/KG	0.21	1.0
		Nitrate Nitrite	1.3	MG/KG	0.19	1.0
		Oil & Grease Gravimetri	688 u	MG/KG	688	1.0
		Sulfide	20.5 u	MG/KG	20.5	1.0
-004	B17RY1	% Solids	92.8	%	0.01	1.0
		Chromium VI	0.22 u	MG/KG	0.22	1.0
		Nitrate Nitrite	82.5	MG/KG	3.9	20.0
		Oil & Grease Gravimetri	718 u	MG/KG	718	1.0
		Sulfide	21.3 u	MG/KG	21.3	1.0
-005	B17RV3	% Solids	94.2	%	0.01	1.0
		Chromium VI	0.21 u	MG/KG	0.21	1.0
		Nitrate Nitrite	46.6	MG/KG	1.6	10.0
		Oil & Grease Gravimetri	708 u	MG/KG	708	1.0
		Sulfide	20.7 u	MG/KG	20.7	1.0
-006	B17T00	% Solids	96.5	%	0.01	1.0
		Chromium VI	0.21 u	MG/KG	0.21	1.0
		Nitrate Nitrite	5.9	MG/KG	0.33	2.0
		Oil & Grease Gravimetri	691 u	MG/KG	691	1.0
		Sulfide	20.6 u	MG/KG	20.6	1.0
-007	B17T03	% Solids	97.6	%	0.01	1.0
		Chromium VI	0.20 u	MG/KG	0.20	1.0
		Nitrate Nitrite	0.81	MG/KG	0.19	1.0
		Oil & Grease Gravimetri	683 u	MG/KG	683	1.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/16/04

CLIENT: TNUHANFORD F03-025 H2479

LVL LOT #: 0312L462

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-007	B17T03	Sulfide	19.7	u MG/KG	19.7	1.0

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Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/16/04

CLIENT: TNUHANFORD F03-025 H2479
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0312L462

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK10	04LVI001-MB1	Chromium VI	0.20 u	MG/KG	0.20	1.0
BLANK10	04LN3001-MB1	Nitrate Nitrite	0.20 u	MG/KG	0.20	1.0
BLANK10	04LOG001-MB1	Oil & Grease Gravimetri	667	u MG/KG	667	1.0
BLANK10	04LSDA02-MB1	Sulfide	40.0 u	MG/KG	40.0	1.0

000010

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/16/04

CLIENT: TNUHANFORD F03-025 H2479

LVL LOT #: 0312L462

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-007	B17T03	Soluble Chromium VI	4.5	0.20u	4.1	107.8	1.0
		Chromium VI MSD	1310	0.20u	1150	114.3	100
		Nitrate Nitrite	128	0.81	107	118.9	20.0
		Oil & Grease Gravimetr	7440	683 u	7000	106.3	1.0
		Sulfide	170	5.4	186	88.1	1.0
BLANK10	04LVI001-MB1	Soluble Chromium VI	3.9	0.20u	4.0	97.3	1.0
		Insoluble Chromium VI	1240	0.20u	1130	110.3	100
BLANK10	04LN3001-MB1	Nitrate Nitrite	5.5	0.20u	5.0	109.2	1.0
BLANK10	04LOG001-MB1	Oil & Grease Gravimetr	7330	667 u	6830	107.4	1.0
		Oil & Grease - Grav M	7350	667 u	6830	107.6	1.0
BLANK10	04LSDA02-MB1	Sulfide	339	40.0 u	372	91.0	1.0

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Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 01/16/04

CLIENT: TNUHANFORD F03-025 H2479

LVL LOT #: 0312L462

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	04LOG001-MB1	Oil & Grease - Grav	107.4	107.6	0.2

000012

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/16/04

CLIENT: TNUHANFORD F03-025 H2479

LVL LOT #: 0312L462

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
=====	=====	=====	=====	=====	=====	=====
-001REP	B17RX0	% Solids	86.8	86.6	0.27	1.0
-007REP	B17T03	Chromium VI	0.20u	0.20u	NC	1.0
		Nitrate Nitrite	0.81	0.77	4.8	1.0
		Oil & Grease Gravimetri	683 u	683 u	NC	1.0
		Sulfide	19.7 u	20.2 u	NC	1.0

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FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: <u>TNU - Hanford F03-025</u>	Refrigerator #	
Est. Final Proj. Sampling Date	#/Type Container	Liquid
Project # <u>11343-606-001-9999-00</u>		Solid
Project Contact/Phone #	Volume	Liquid
Lionville Laboratory Project Manager <u>05</u>		Solid
QC <u>Spec</u> Del <u>5TD</u> TAT <u>18 25 days</u>	Preservatives	
Date Rec'd <u>12-31-03</u> Date Due <u>1-18-04</u>	ANALYSES REQUESTED	
	ORGANIC	INORG
	VOA BNA Pest/PCB Herb	Metal NO

MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
			MS	MSD				ICR6	IN3N2	ISFD	IUGGR																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		

Special Instructions: SAF # F03-025Run Matrix QC

DATE/REVISIONS:

1-8-04 1. TAT = 18 days Due 1-18-04
 2. per client Request
 3. _____
 4. _____
 5. _____
 6. _____

Lionville Laboratory Use Only

Samples were:

 1) Shipped _____ or
 Hand Delivered _____
 Airbill # See

2) Ambient or Chilled

3) Received in Good Condition Y or N

4) Samples Properly Preserved Y or N

5) Received Within Holding Times Y or N

Tamper Resistant Seal was:

1) Present on Outer Package Y or N

2) Unbroken on Outer Package Y or N

3) Present on Sample Y or N

4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. _____ °C

Relinquished by	Received by	Date	Time
<u>Fed Ex</u>	<u>[Signature]</u>	<u>12/18/03</u>	<u>1015</u>

Relinquished by	Received by	Date	Time
"COMPOSITE WASTE"	ORIGIN R.L. REWRITTEN		

 Discrepancies Between Samples Labels and COC Record? Y or N
 NOTES:

03/24 462

FLUOR Hanford Inc.		CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-025-010		Page 1 of 1	
Collector Pope/Pfister/Hughes		Company Contact TRENT, STEVE		Telephone No. 373-5689		Project Coordinator TRENT, SJ		Price Code <i>8184</i>	
Project Designation 200-LW-1/LW-2 Characterization - Soil		Sampling Location 216-B-58 #2 (12.5-15 FT)		SAF No. F03-025		Air Quality <input type="checkbox"/>		Data Turnaround <i>6-45 Days</i>	
Ice Chest No. <i>GPP-03-028</i>		Field Logbook No. <i>MDX-10-336-1</i>		COA 119143ES10		Method of Shipment FEDERAL EXPRESS		<i>01/12/03</i>	
Shipped To <i>MDX 12-10-03 Recra</i> EDERLINE SERVICES (Formerly TMA)		Offsite Property No. <i>See PTR</i>		Bill of Lading/Air Bill No. <i>See PTR</i>					
POSSIBLE SAMPLE HAZARDS/REMARKS <i>Radioactive Tie To: B17RX2</i> Special Handling and/or Storage				Preservation	Cool 4C	None			
				Type of Container	G	G/P			
				No. of Container(s)	1	100			
				Volume	250mL	250mL			
SAMPLE ANALYSIS				See item (1) in Special Instructions.	See item (2) in Special Instructions.				
Sample No.	Matrix *	Sample Date	Sample Time						
B17RX0	SOIL	12/17/03	0900	X					
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *	
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		<p><i>MDX 12-10-03</i></p> <p>The laboratory is to analyze all with 24 hours of sample receipt. The laboratory is to report kerosene range organics from the WPH-D analysis. See SAF COC Comments for holding time issues.</p> <p>(1) Chromium Hex - 7196; NO2/NO3 - 353.2; Sulfides - 9030; Oil & Grease - 413.1</p> <p>(2) Nickel-63; Gamma Spec - Radium (Radium-226, Radium-228); Technetium-99; Isotopic Thorium (Thorium-232); Tritium - H3; Carbon-14; Strontium-89,90 -- Total Sr</p>	
<i>JS/06/12/17/03 1630</i>		<i>12/17/03 1630</i>		<i>MDX-026/Fridge #2</i>		<i>12/17/03 1630</i>			
<i>MDX-026/Fridge #2</i>		<i>12/30/03 0945</i>		<i>Greg Thomas Greg Thomas</i>		<i>12/30/03 0945</i>			
<i>Greg Thomas Greg Thomas</i>		<i>12/30/03 0945</i>		<i>Fed Ex</i>		<i>12/30/03 0945</i>			
<i>Paul Ee</i>		<i>12-31-03 1015</i>		<i>12-31-03 1015</i>		<i>12-31-03 1015</i>			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
LABORATORY SECTION		Received By		Title		Date/Time			
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time			

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* AT 12/30/03

FLUOR Hanford Inc.		CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-025-011 Page 1 of 1	
Collector Pope/Pfister/Hughes		Company Contact TRENT, STEVE		Telephone No. 373-5689		Project Coordinator TRENT, SJ	
Project Designation 200-LW-1/LW-2 Characterization - Soil		Sampling Location 216-B-58 #2 (17.5-20 FT)		SAF No. F03-025		Price Code 8N ^{12/1/03} 8H ^{12/1/03} Data Turnaround 45 Days ^{12/1/03}	
Ice Chest No. <u>GPP-03-028</u>		Field Logbook No. <u>HNF-N-326-1</u>		COA 119143ES10		Air Quality <input type="checkbox"/> ^{8D} 21 ^{30 DAYS}	
Shipped To <u>MD 12-1-03</u> EBERLINE SERVICES (Formerly TMA) <u>Reva</u>		Offsite Property No. <u>See PTL</u>		Method of Shipment FEDERAL EXPRESS		Bill of Lading/Air Bill No. <u>See PTL</u>	
POSSIBLE SAMPLE HAZARDS/REMARKS <u>Radioactive Tl TO: B17RX6</u> Special Handling and/or Storage				Preservation	Cool 4C	None	
				Type of Container	G	G/P	
				No. of Container(s)	1	1	
				Volume	250mL	250mL	
SAMPLE ANALYSIS				See item (1) in Special Instructions.	See item (2) in Special Instructions.		
Sample No.	Matrix *	Sample Date	Sample Time				
B17RWZ	SOIL	<u>AT 12/8/03</u>					
B17RX4	SOIL	<u>12-17-3</u>	<u>10:25</u>				
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time	
<u>REVA/12/1/03</u>		<u>12/19/03 1630</u>		<u>MO-026/12/1/03</u>		<u>2 12/17/03 1630</u>	
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time	
<u>MO-026/12/1/03</u>		<u>0945</u>		<u>Greg Thomas</u>		<u>12/30/03</u>	
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time	
<u>Greg Thomas</u>		<u>12/30/03</u>		<u>Fed Ex</u>			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time	
<u>Fed Ex</u>		<u>12-31-03 1015</u>		<u>12-31-03</u>		<u>1015</u>	
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time	
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time	
LABORATORY SECTION				Title			
Received By				Date/Time			
FINAL SAMPLE DISPOSITION				Disposal Method			
Disposed By				Date/Time			

A-6003-618(03/03)

FLUOR Hanford Inc.		CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-025-014		Page 1 of 1	
Collector Pope/Pfister/Hughes		Company Contact TRENT, STEVE		Telephone No. 373-5689		Project Coordinator TRENT, SJ		Price Code 8N8H *8D	
Project Designation 200-LW-1/LW-2 Characterization - Soil		Sampling Location 216-B-58 #2 (27.5-30 FT)		SAF No. F03-025		Air Quality <input type="checkbox"/>		Data Turnaround 45 Days *21.30 DAYS	
Ice Chest No. GPP-03-008		Field Logbook No. HNF-10-3361		COA 119143ES10		Method of Shipment FEDERAL EXPRESS			
Shipped To EBERLINE SERVICES (Formerly TMA) Kerra		Offsite Property No. See PTR		Bill of Lading/Air Bill No. See PTR					
POSSIBLE SAMPLE HAZARDS/REMARKS Radioactive Tie to: BN243 Special Handling and/or Storage		Preservation	Cool 4C	None					
		Type of Container	G	G					
		No. of Container(s)	1						
		Volume	250mL	250mL					
SAMPLE ANALYSIS		See item (1) in Special Instructions.	See item (2) in Special Instructions.						000018
Sample No.	Matrix *	Sample Date	Sample Time						
B17RY1	SOIL	12-17-03	14:00	X					
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *	
Relinquished By/Removed From S.S. Pope/12/17/03 1630		Date/Time 12/17/03 1630		Received By/Stored In MO-026/Hidgco #2		Date/Time 12/17/03 1630		<p>The laboratory is to analyze pH within 24 hours of sample receipt. The laboratory is to report kerosene range organics from the WTPH-D analysis. See SAF COC Comments for holding time issues.</p> <p>(1) Chromium Hex - 7196; NO2/NO3 - 353.2; Sulfides - 9030; Oil & Grease - 413.1 (2) Nickel-63; Gamma Spec - Radium (Radium-226, Radium-228); Technetium-99; Isotopic Thorium (Thorium-232); Tritium - H3; Carbon-14; Strontium-89,90 - Total Sr</p> <p>12/21/03</p>	
Relinquished By/Removed From MO-026/Hidgco #2		Date/Time 12/30/03 0945		Received By/Stored In Greg Thomas		Date/Time 12/30/03 0945			
Relinquished By/Removed From Greg Thomas		Date/Time 12/30/03 0945		Received By/Stored In FDO EX		Date/Time 12/31/03 1015			
Relinquished By/Removed From FDO EX		Date/Time 12/31/03 1015		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
LABORATORY SECTION		Received By		Title		Date/Time			
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time			

FLUOR Hanford Inc.		CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-025-045		Page 1 of 1		
Collector Pope/Pfister/Hughes		Company Contact TRENT, STEVE		Telephone No. 373-5689		Project Coordinator TRENT, SJ		Price Code 8N-24 Data Turnaround 800		
Project Designation 200-LW-1/LW-2 Characterization - Soil		Sampling Location 216-B-58 #2 (35-37.5 FT)		SAF No. F03-025		Air Quality <input type="checkbox"/>		045 Days 2130 DAYS		
Icc Chest No. GPP-03-0028		Field Logbook No. HNF-N-3361		COA 119143ES10		Method of Shipment FEDERAL EXPRESS		D MBB 12/30/03		
Shipped To EBERLINE SERVICES (Formerly TMA) Kerra		Offsite Property No. See PTL		Bill of Lading/Air Bill No. See PTL						
POSSIBLE SAMPLE HAZARDS/REMARKS Radioactive Tie TO: BnRY7 Special Handling and/or Storage				Preservation	Cool 4C	None				
				Type of Container	G	G/P				
				No. of Container(s)	1					
				Volume	250mL	250mL				
SAMPLE ANALYSIS				See item (1) in Special Instructions.	See item (2) in Special Instructions.					
Sample No.	Matrix *	Sample Date	Sample Time							
B17RV3	SOIL	12-18-03	0715							
CHAIN OF POSSESSION				Sign/Print Names		SPECIAL INSTRUCTIONS				
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time	The laboratory is to analyze pH within 24 hours of sample receipt. The laboratory is to report kerosene range organics from the WTPH-D analysis. See SAF COC Comments for holding time issues. (1) Chromium Hex - 7196; NO2/NO3 - 353.2; Sulfides - 9030; Oil & Grease - 413.1 (2) Nickel-63; Gamma Spec - Radium (Radium-226, Radium-228); Technetium-99; Isotopic Thorium (Thorium-232); Tritium - H3; Carbon-14; Strontium-89,90 -- Total Sr Matrix * S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Asphalt DS=Drum Solids DL=Drum Liquids T=Tissue WL=Wipe L=Liquid V=Vegetation X=Other				
JSPope/AGH		12/18/03 1430	M0-0261 Bridge #2		12/18/03 1430					
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time					
M0-026 Bridge #2		12/30/03 0945	Greg Thomas		12/30/03 0945					
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time					
Greg Thomas		12/30/03 0945	Fed Ex							
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time					
F2V E		12-31-03 1015	V. Thomas		12/31/03 1015					
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time					
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time					
LABORATORY SECTION		Received By		Title		Date/Time				
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time				

* 87 12/30/03

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FLUOR Hanford Inc.		CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-025-046		Page 1 of 1	
Collector Pope/Pfister/Hughes		Company Contact TRENT, STEVE		Telephone No. 373-5689		Project Coordinator TRENT, SJ		Price Code <i>8N 8#</i>	
Project Designation 200-LW-1/LW-2 Characterization - Soil		Sampling Location 216-B-58 #2 (52.5-55 FT)		SAF No. F03-025		Air Quality <input type="checkbox"/> <i>8D</i>		Data Turnaround <i>45 Days</i>	
Ice Chest No. <i>APP-03-028</i>		Field Logbook No. <i>HNF-N-3861</i>		COA <i>119143ES10</i>		Method of Shipment FEDERAL EXPRESS			
Shipped To EBERLINE SERVICES (Formerly TMA) <i>Reera</i>		Offsite Property No. <i>See PTR</i>		Bill of Lading/Air Bill No. <i>See PTR</i>					
POSSIBLE SAMPLE HAZARDS/REMARKS <i>Radioactive Tie TO: B17T02</i>				Preservation		Cool 4C	None		
Special Handling and/or Storage				Type of Container		G	G/P		
				No. of Container(s)		1			
				Volume		250mL	250mL		
SAMPLE ANALYSIS				See item (1) in Special Instructions.		See item (2) in Special Instructions.			
Sample No.	Matrix *	Sample Date	Sample Time						
B17T00	SOIL	12-18-03	0945	X					
CHAIN OF POSSESSION				Sign/Print Names		SPECIAL INSTRUCTIONS			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		The laboratory is to analyze pH within 24 hours of sample receipt. The laboratory is to report kerosene range organics from the WTRHD analysis. See SAF COC Comments for holding time issues. (1) Chromium Hex - 7196; NO2/NO3 - 353.2; Sulfides - 9030; Oil & Grease - 413.1 (2) Nickel-63; Gamma Spec - Radium (Radium-226, Radium-228); Technetium-99; Isotopic Thorium (Thorium-232); Tritium-H3; Carbon-14; Strontium-89,90 -- Total Sr <i>TMD 12-16-03</i>	
<i>TSBk/Asph</i>		<i>12/18/03 1430</i>		<i>MO-026/Brdg #2</i>		<i>12/18/03 1430</i>			
<i>MO-026/Brdg #2</i>		<i>12/30/03 0945</i>		<i>Greg Thomas</i>		<i>12/30/03</i>			
<i>Greg Thomas</i>		<i>12/30/03 0945</i>		<i>Fed Ex</i>					
<i>Fed Ex</i>		<i>12-31-03 1015</i>		<i>N. Hesand</i>		<i>12-31-03 1015</i>			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		Matrix * S=Soil SE=Sediment SO=Solid SL=Sludge TL=Topsoil DL=Drum Solids T=Tissue WL=Wipe L=Liquid V=Vegetation X=Other	
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
LABORATORY SECTION		Received By		Title		Date/Time			
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time			

FLUOR Hanford Inc.		CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-025-047		Page 1 of 1	
Collector Pope/Pfister/Hughes		Company Contact TRENT, STEVE		Telephone No. 373-5689		Project Coordinator TRENT, SJ		Price Code 8N ^{2M 12/10/03} 8H ^{2M 12/10/03} 8D ^{2M 12/10/03}	
Project Designation 200-LW-1/LW-2 Characterization - Soil		Sampling Location ^{97.5-100 FT} 216-B-58 #2 (52.5 SS FT) 104 ¹²⁻²²⁻³		SAF No. F03-025		Air Quality <input type="checkbox"/> ^{645 Days} 8D ^{21 30 DAYS}			
Ice Chest No. ^{GPP-03-028}		Field Logbook No. HDF-N-3361		COA 119143ES10		Method of Shipment FEDERAL EXPRESS		^{01 MAR 12/30/03}	
Shipped To EDERLINE SERVICES (Formerly TMA) ^{Recra}		Offsite Property No. ^{See PR}		Bill of Lading/Air Bill No. ^{See PR}					
POSSIBLE SAMPLE HAZARDS/REMARKS Radioactive Tie TO: B17T05 Special Handling and/or Storage				Preservation	Cool 4C	None ⁰			
				Type of Container	G	G/T			
				No. of Container(s)	1				
				Volume	250mL	250mL			
SAMPLE ANALYSIS				See item (1) in Special Instructions.	See item (2) in Special Instructions.				
Sample No.	Matrix *	Sample Date	Sample Time						
B17T03	SOIL	12-22-3	10:05	X					
CHAIN OF POSSESSION				Sign/Print Names		SPECIAL INSTRUCTIONS			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		The laboratory is to analyze pH within 24 hours of sample receipt. The laboratory is to report kerosene range organics from the WTPH-D analysis. See SAF COC Comments for holding time issues. (1) Chromium Hex - 7196; NO2/NO3 - 353.2; Sulfides - 9030; Oil & Grease - 413.1 (2) Nickel-63; Gamma Spec - Radium (Radium-226), Radium-226; Technetium-99; Isotopic Thorium (Thorium-232); Tritium - H3; Carbon-14; Strontium-89,90 -- Total Sr	
Kevin Hughes ¹²⁻²²⁻³		12:05		10-026 Site Fr. #1		12/05			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Moeck Frig #1		12/30/03		Greg Thomas		12/30/03			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Greg Thomas		12/30/03		Fed Ex					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Pope		12-31-03		Bill Trent		12-31-03			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
LABORATORY SECTION		Received By		Title		Date/Time			
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time			

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: *THU HANFORD*

Date: *12-31-03*

Purchase Order / Project# /

SAP# / SOW# / Release #: *F03-025*

LvLI Batch #: *Q312 L 462*

Sample Custodian: *[Signature]*

NOTE: EXPLAIN ALL DISCREPANCIES

- | | | |
|---|--|--|
| 1. Samples Hand Delivered or Shipped | Carrier <i>FE & E</i> | Airbill# <i>7917 4406 6521</i> |
| 2. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals Comments |
| 3. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 4. All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 5. Samples received-cooled or ambient? | Temp <i>1.9°</i> °C | Cooler # <i>GPP-03-028</i> |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals |
| 7. coc signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 8. Sample containers are intact? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 9. All samples on coc received? All samples received on coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 10. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 11. Samples properly preserved? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 12. Samples received within hold times? Short holds taken to wet lab? | <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No | <i>Sulfide rec'd past hold.</i> |
| 13. VOA, TOC, TOX free of headspace? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |
| 14. QC stickers placed on bottles designated by client? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |
| 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No | <i>see #12</i> |
| 16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria) | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> No Discrepancies |

SR-002-B

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